EFFECTIVENESS OF AEROBIC EXERCISES ON FATIGUE AND ACTIVITIES OF DAILY LIVING AMONG PATIENTS UNDERGOING HEMODIALYSIS

DISSERTATION SUBMITTED TO

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI

In partial fulfillment of requirement for the degree of

MASTER OF SCIENCE IN NURSING

OCTOBER – 2018

Internal Examiner:

External Examiner:

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Approved by the Dissertation committee on July 2017

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LIST OF ABBREVIATIONS

ADL	**Activities of Daily Living**
AHA	**American Heart Association**
CKD	**Chronic kidney disease**
CUD	**Congenital urinary deformity**
ESRD	**End stage renal disease**
FSS	**Fatigue severity scale**
GFR	**Glomerular filtration rate**
HD	**Hemodialysis**
IADL	**Instrumental Activities of Daily Living**
NIDDK	**National Institute of Diabetes and Digestive and Kidney Disease**
RRT	**Renal replacement therapy**
SD	**Standard Deviation**
WHO	**World Health Organization**

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Effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis.

Aim and objective: To assess the effectiveness of aerobic exercise on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospital, Chennai. **Methodology:** A true experimental design was chosen for the study, conducted at Deepam Hospital, Tambaram, Chennai -600045 and Deepam Hospital, Pallavaram, Chennai –600043. The samples consisted of 60 patients undergoing hemodialysis, selected using simple random sampling technique through lottery method. **Results:** The study finding portrays that the experimental group pretest mean score of ADL was 0.57±1.04 and the post test mean score was 5.37±0.61. The mean improvement score was 4.80. In the experimental group and the mean difference score was 4.47 between the experimental and control group. The calculated paired't' value of t = 22.165 was found to be statistically highly significant at $p<0.001$ level. **Conclusion:** This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of ADL in the experimental group whereas in the control group the calculated paired 't' value of t = 1.795 was not found to be statistically significant.

Keywords: Aerobic exercises, Fatigue, Activities of Daily living.

INTRODUCTION

We live in an express world where we are struggling to keep our family, friends, relatives life in a smooth and comfortable way, were we are not choosing a healthy life. Health is one of the biggest versions of our life to travel comfortably to the future as a healthy human being. Our health span gets slows down when we are not taking care of it properly, finally it results as an obstacle in our future lives.

Exercises are known to improve mental and physical functioning which in turn improves quality of life. The investigator has come across many patients undergoing hemodialysis predisposed to physical limitations and experiencing extreme level of fatigue.

Exercises have the beneficial in all domains of quality of life and it's a feasible method for patients with low cost intervention, nurse can take an active role in such interventions.

Hemodialysis is the most common renal replacement therapy, which is a process that replaces the excretory functions of the kidney through the use of a filter that contains a semi permeable membrane separating by a rinse solution from blood to filter out toxic substances from the blood. Patients receive the treatment during 3 to 5 hours per session. Hemodialysis treatment is administered in hospital, in outpatient department or at home after a training period and adaptation at home.

Objective

To assess the effectiveness of aerobic exercise on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospital, Chennai.

METHODOLOGY

Research Design: True experimental design

Study Setting : Deepam Speciality Hospital, Tambaram and Deepam Pallavaram tertiary Hospital, Pallavaram.

Population : The population of the study includes all patients undergoing hemodialysis at selected hospitals.

Sample Size : The sample size of the study consists of 60 hemodialysis patients (who fulfill the inclusive criteria).

Sampling technique: Simple random sampling technique through lottery method adopted to select samples.

Intervention

The intervention given by the investigator was aerobic exercises. It includes 4 sets of exercises like reverse curls, simple arm rotation, simple seated hamstring curls and biceps curls totally for 20 minutes.

Measurement and Tool

The level of fatigue and ADLs was assessed using standardized fatigue severity scale, Lawton instrumental activities of daily living (IADLs) and Katz activities of daily living (ADLs). Both descriptive and inferential statistics were used for analysis.

RESULTS

The present study aimed to assess the effectiveness of aerobic exercise on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospital, Chennai.

The analysis shows that in the experimental group, 29(96.67%) were fully dependent and only 1(3.33%) was moderately dependent in the pretest, whereas in the post test, 17(56.67%) were moderately dependent and 13(43.33%) were fully independent.

In the control group, in the pretest 27(93.33%) were fully dependent and only 3(6.67%) were moderately dependent whereas in the post test, 26(86.67%) were fully dependent and only 4(13.33%) were moderately dependent.

The analysis of level of Activities of Daily Living (ADL) among patients undergoing hemodialysis within and between the experimental and control group portrays that in the experimental group pretest mean score of ADL was 0.57±1.04 and the post test mean score was 5.37±0.61. The mean improvement score was 4.80. In the experimental group the mean difference score was 4.47 between the experimental and control group. The calculated paired‘t’ value of t = 22.165 was found to be statistically highly significant at $p<0.001$ level. This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of ADL in the experimental group whereas in the control group the calculated paired ‘t’ value of t = 1.795 was not found to be statistically significant.

The calculated unpaired‘t’ value of t = 0.789 in the pretest between the experimental and control group was not found to be statistically significant and this clearly indicates that there was no difference in the pretest level of ADL among patients undergoing hemodialysis in the experimental and control group. Whereas the calculated unpaired ‘t’ value of t = 17.349 in the post test between the experimental and control group was found to be statistically significant at $p<0.001$ level and this clearly indicates that there was significant difference in the post test level of ADL among patients undergoing hemodialysis in the experimental and control group.

DISCUSSION

The study findings clearly indicates that the aerobic exercises on Activities of daily living was found to be effective in improving the level of ADL among patients undergoing hemodialysis in the experimental group than the patients in the control group.

IMPLICATIONS

- In service education can be given to staff nurses and faculty members regarding aerobic exercises, and hemodialysis induced fatigue and ADLs.
- The Nurse administrator can arrange and conduct workshop, conference and seminars on aerobic side effects of hemodialysis and its management by aerobic exercises.
- The Nurse researcher can promote more research on aerobic exercises among hemodialysis patients.

INTRODUCTION

'Keep your face always toward the sunshine - and shadows will fall behind you.'

- ***Lydia Sweatt***

We live in an express world where we are struggling to keep our family, friends, relatives life in a smooth and comfortable way, were we are not choosing a healthy life. Health is one of the biggest version of our life to travel comfortably to the future has a healthy human being. Our health span gets slows down when we are not taking care of it properly, finally it results as an obstacle in our future lives.

Kidneys are the most important excretory organs within the human body. Healthy kidneys are the sophisticated reprocessing machine that cleans the blood by removing salt and wastes from the body. Chronic kidney disease is based on the presence of kidney damage (i.e., albuminuria) or decreased kidney function (i.e. Glomerular filtration rate [GFR] <60 mL/min per 1·73 m^2) for 3 months or more, irrespective of clinical diagnosis. Findings from experimental and clinical studies have suggested an important role for protein urea in the pathogenesis of disease progression.

Hemodialysis patients who exercised aerobically had greater health-related quality of life and lower rates of depression symptoms and mortality according to a prospective cohort study involving dialysis centers in 12 countries. Chronic kidney disease patients on hemodialysis experience greater quality of life and lower mortality with regular exercise.

The researchers found that physically active patients had a lower rate of co-morbid conditions, spent more time on dialysis and were younger compared to patients who did not complete physical activity questionnaires. Lower mortality was also correlated with aerobic exercise. Compared to patients who were never or rarely physically active, those who were very active had a 40% reduced risk, sometimes active had a 16% reduced risk and infrequently active had an 11% reduced risk. The same correlation was observed in symptoms of depression. **Dr. Lopes (2014) concluded** that "their findings provide further support to the promotion of physical activity programs in hemodialysis units".

1.1 BACKGROUND OF THE STUDY

Kidney function is partially replaced through dialysis; patients endure many symptoms of the disease such as fatigue, decreased activity of daily living, hypotension, muscle cramps, dehydration and anemia. Many factors have been studied regarding their relationship with fatigue in this population. There is little knowledge regarding the experience of fatigue for patients on hemodialysis and there has been little success identifying demographic, psychosocial, or physiological factors that are consistently related to fatigue.

Chronic kidney disease (CKD) is becoming a major public health problem worldwide. The current burden of disease might due to a change of the underlying pathogenicity of CKD. Glomerulonephritis was the one of the leading causes of kidney disease several decades ago. Nowadays, infections have become a less important cause for kidney disease, at least in the western world. Moreover, current evidence suggests that hypertension and diabetes are the two major causes of kidney disease worldwide. Given the pathogenic progression of kidney disease, patients with CKD are at high risk for progression to the end stage renal disease (ESRD) – a condition requiring dialysis or kidney transplantation to maintain patients' long-term survival.

In 2001, the average annual cost for maintenance of ESRD therapy was between US $70 and $75 billion worldwide excluding kidney transplantation, and the predicted number of ESRD patients will reach over 2 million in 2010. The enormous costs of treatment lead to a large burden for the health care systems, particularly in developing countries. In addition, CKD has a complicated interrelationship with other diseases. Recent studies have reported that CKD is an independent risk factor for cardiovascular disease (CVD). Therefore, kidney dysfunction should be an additional target for intervention and prevention of CVD. In 2003, the American Heart Association (AHA) stated that persons with CKD should be regarded as the highest risk group for subsequent Cardio vascular disease.

Kidney diseases are silent killer which largely affect the quality of life. Kidney failure is traditionally regarded as the most serious outcome of chronic kidney disease and symptoms are usually caused by complications of reduced kidney function. When symptoms are severe they can be treated only by dialysis and transplantation; kidney

failure treated this way is known as end-stage renal disease or the need for treatment with dialysis or transplantation. Other outcomes include complications of reduced GFR, such as increased risk of cardiovascular disease, acute kidney injury, infection, cognitive impairment, and impaired physical function. Complications can occur at any stage, which often lead to death with no progression to kidney failure, and can arise from adverse effects of interventions to prevent or treat the disease.

Chronic kidney disease is a general term for heterogeneous disorders affecting the structure and function of the kidney. The variation in disease expression is related partly to cause and pathology, severity, and rate of progression. The introduction of the conceptual model, definition, and staging of chronic kidney disease 10 years ago, have recommended a shift from kidney disease being recognized as a life threatening disorder affecting few people who need care by nephrologists, to a common disorder of varying severity that not only merits attention by general internists, but also needs a concerted public health approach for prevention, early detection, and management. Although guidelines had an important effect on clinical practice, research, and public health, they have also generated controversy. The patients prognosis, treatment modalities and side effects of the treatment for kidney problem are long lasting issues that can severely affect the patient quality of life.

Hemodialysis is the most common renal replacement therapy, which is a process that replaces the excretory functions of the kidney through the use of a filter that contains a semi permeable membrane separating by a rinse solution from blood to filter out toxic substances from the blood. Patients receive the treatment during 3 to 5 hours per session. Hemodialysis treatment is administered in hospital, in outpatient department or at home after a training period and adaptation at home.

According to the data gathered by the **NATIONAL KIDNEY FOUNDATION,** More than 80% of all patients who receive treatment for kidney failure are in affluent countries with universal access to health care and large elderly populations. It is estimated that number of cases of kidney failure will increase disproportionately in developing countries, such as China and India, where the number of elderly people are increasing.

According to the data gathered by the **MEDSCAPE, Frellick.M, 2017,** One in 10 people worldwide have kidney disease. According to the first detailed global report on care

delivery for kidney disease, although high-income countries have the highest costs for dialysis and kidney transplantation, fewer than one (29%) in three high-income countries consider chronic kidney disease a priority compared with almost two (59%) in three low-income countries.

Global Fact, National Kidney Foundation says that in worldwide it is estimated that one in five men, and one in 4 women's, have chronic kidney Disease. In India about one lakh people develops End stage renal disease every year. Renal disease remains a major, though largely unrecognized public health issue in India. A Large number of ESRD patient are those from rural areas and small towns where treatment is not available and those who cannot afford the costs even where treatment is available. A person with ESRD requires renal replacement therapy in the form of either dialysis on a continuing basis or a renal transplant. Further, treatment for renal disease is still largely in the Private health care sector, where the costs are high.

According to **WHO (2013)** said that approximately 80% of the world's renal replacement therapy (RRT) patients live in Europe, Japan or North America. By contrast, less than 10% of Indian ESRD patients receive RRT, while up to 70% of those starting dialysis die or stop treatment, due to cost, within the first 3 months.

According to **NATIONAL INSTITUTE OF DIABETIC AND DIGESITIVE AND KIDNEY DISEASE (NIDDK)** 2016 reveals that, the overall prevalence of CKD in the general population is approximately 14 percent. High blood pressure and diabetes are the main causes of CKD. Almost half of individuals with CKD also have diabetes and/or self-reported cardiovascular disease (CVD). More than 661,000 Americans have kidney failure. Of these, 468,000 individuals are on dialysis and roughly 193,000 live with a functioning kidney transplant. Kidney disease often has no symptoms in its early stages and can go undetected until it is very advanced. The adjusted incidence rate of ESRD in the United States rose sharply in the 1980s and 1990s, leveled off in the early 2000s, and has declined slightly since its peak in 2006. Compared to Caucasians, ESRD prevalence is about 3.7 times greater in African Americans, 1.4 times greater in Native Americans, and 1.5 times greater in Asian Americans. Each year, kidney disease kills more people than breast or prostate cancer. In 2013, more than 47,000 Americans died from kidney disease.

1.2 NEED FOR THE STUDY

In present millennium, since our modern life style has been changed, many of the people were affected in stressful situation and cause hypertension which in turn sometimes people may undergo in slow progressive loss of kidney function temporarily or permanently which we called as kidney failure.

In order to prolong the life for many patients may undergoing hemodialysis which is a progressive of removing wastes, such as urea, from the blood. Restore the proper balance of electrolytes in the blood. Eliminate extra fluid from the body. According to the clinical assessment and research intervention to reduce fatigue are essential in handling the added burdens with fatigue in renal population. Exercise would help to relieve selected symptoms of fatigue and activity of daily living.

Exercises are known to improve mental and physical functioning which inurn improves quality of life. The investigator has come across many patients undergoing hemodialysis predisposed to physical limitations and experiencing extreme level of fatigue. Exercises have the beneficial all domains of quality of life and it's a feasible method for patients with low cost intervention, nurses can take an active role in such interventions. Hence the investigator has intended to undertake the study on effectiveness of aerobic exercises in overcoming fatigue and maintain ADLs among hemodialysis patients.

When patients is under hemodialysis, patient undergo some physical problems like fatigue, muscles cramps, hypertension, hypotension, decreased daily activities, itching, sleep problem, anemia, hyperkalemia, depression, etc. Fatigue is a normal pattern of disease process and treatment in connection to this the investigator found exercises would help to relieve selected physiological problems like of fatigue and activities of daily living by extending their life expectancy.

1.3 STATEMENT OF THE PROBLEM

A study to assess the effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospitals, Chennai.

1.4 OBJECTIVES OF THE STUDY

1. To determine the effectiveness of aerobic exercises among hemodialysis patients in experimental group and control group.
2. To correlate between the level of fatigue and activities of daily living among hemodialysis patient in experimental group and control group.
3. To associate the level of fatigue and activities of daily living with the selected demographic variables in experimental group.

1.5 OPERATIONAL DEFINITIONS

1.5.1 Effectiveness

It refers to the significant reduction in the level of fatigue experienced by the hemodialysis patients after aerobic exercises as measured by using standardized Lawton Instrumental activities of daily living (IADLs), Katz Activities of daily living (ADLs) and Fatigue Severity Scale.

1.5.2 Aerobic exercises

It refers to the exercises like simple seated hamstring curls, simple arm rotation, biceps curl and reverse crunch exercise which will be demonstrated by the investigator and practiced by the patient after hemodialysis in the hospital and home, which will be observed by the investigator (hospital) and patient attender (home) 20 minutes per day for 6 days.

1.5.3 Fatigue

It refers to a state of overtiredness which in turn affects the physical activities which will be measured by using standardized Fatigue Severity scale.

1.5.4 Activities of daily living

It refers to the state of decreased level of routine activities per day without assistance measured by using standardized Lawton Instrumental activities of daily living (IADLs), Katz Activities of daily living (ADLs).

1.5.5 Hemodialysis patients

It refers to the patients who are medically diagnosed as Chronic Kidney Disease and receiving hemodialysis weekly thrice or twice in alternative days.

1.6 RESEARCH HYPOTHESES

H_1: There is a significant difference within pre-test and posttest level of fatigue and ADLs among experimental and control group.

H_2: There is a significant difference between pre-test and posttest level of fatigue and ADLs among experimental.

H_3: There is a significant correlation between the level of fatigue and ADLs among hemodialysis patient in experimental group.

H_4: There is a significant association among the level of fatigue and ADLs with the selected demographic variables in experimental group.

1.7 ASSUMPTIONS

1. Patient undergoing hemodialysis may have some level of fatigue and alteration in ADLs
2. "Aerobic exercises" may be effective in reducing the level of fatigue and ADLs among hemodialysis patients.

1.8 DELIMITATIONS

1. Study is delimited to patients with chronic kidney disease undergoing hemodialysis in selected hospitals at Chennai.
2. The study is delimited to a data collection period of 4 weeks.
3. Study setting is delimited to dialysis unit in selected hospital at Chennai.

1.9 CONCEPTUAL FRAMEWORK

Conceptual framework is a theoretical approach to the study problems that are scientifically based, which emphasizes the selection, arrangement and classification of its concepts it represents the measurement on which purpose of proposed study.

The study is based on the concept that an aerobic exercise reduces the level of fatigue and improves the ADLs during the Hemodialysis cycle.

The conceptual framework used for the study was derived from Weidenbach's helping art of clinical nursing theory (1964). According to Weidenbach's, nursing practice is an art in which the nursing action is distant kinds of action. This theory views nursing as an act based on a center purpose. This theory purposes that nursing practices three components such as

- Identification
- Ministration
- Validation

This theory views nursing as an art based on a central purpose. It consists of three factors - central purpose, prescription and realities. Central purpose refers to the goal towards which the nurse strives. In this study the main central purpose is to assess the effectiveness of aerobic exercises among patients undergoing hemodialysis.

First component is to identify the demographic variables. The investigator absorbs the patient and identifies the need for help by selecting the samples based on the criteria for sample selection. It determines the cause of the discomfort identifiers the risk for fatigue and ADLs from patient's experience and it is evidenced through nurse- patient's interaction. The investigator notice the patients behavior like verbal expression of previous fatigue and ADLs, is frequent passion changes in that worried facial expression during hemodialysis. The investigator also identifies possible risk factors for developing fatigue as high amount of fluid removal, increases duration of hemodialysis, repeated use of dialysis, frequency of dialysis. Finally, it validates with the patient that the health is needed.

The second component is ministration. The researcher meets the needs of the patients by ministering respective intervention. She acts by planning implementing aerobic exercises to prevent fatigue and ADLs. In this study, implementing aerobic exercises done for the experimental group whereas the control groups receive the hospital routine care. Finally, the planned intervention is implemented to alleviate the distress of the patients.

The third component is validation. After helping has been administrated, the researcher validated that the action were indeed helpful. Evidence must come from the patients from the purpose of the nursing actions has been fulfilled. In validating the need for help was met. The investigator validates the ministered help by comparing the level of fatigue in both experimental and control group.

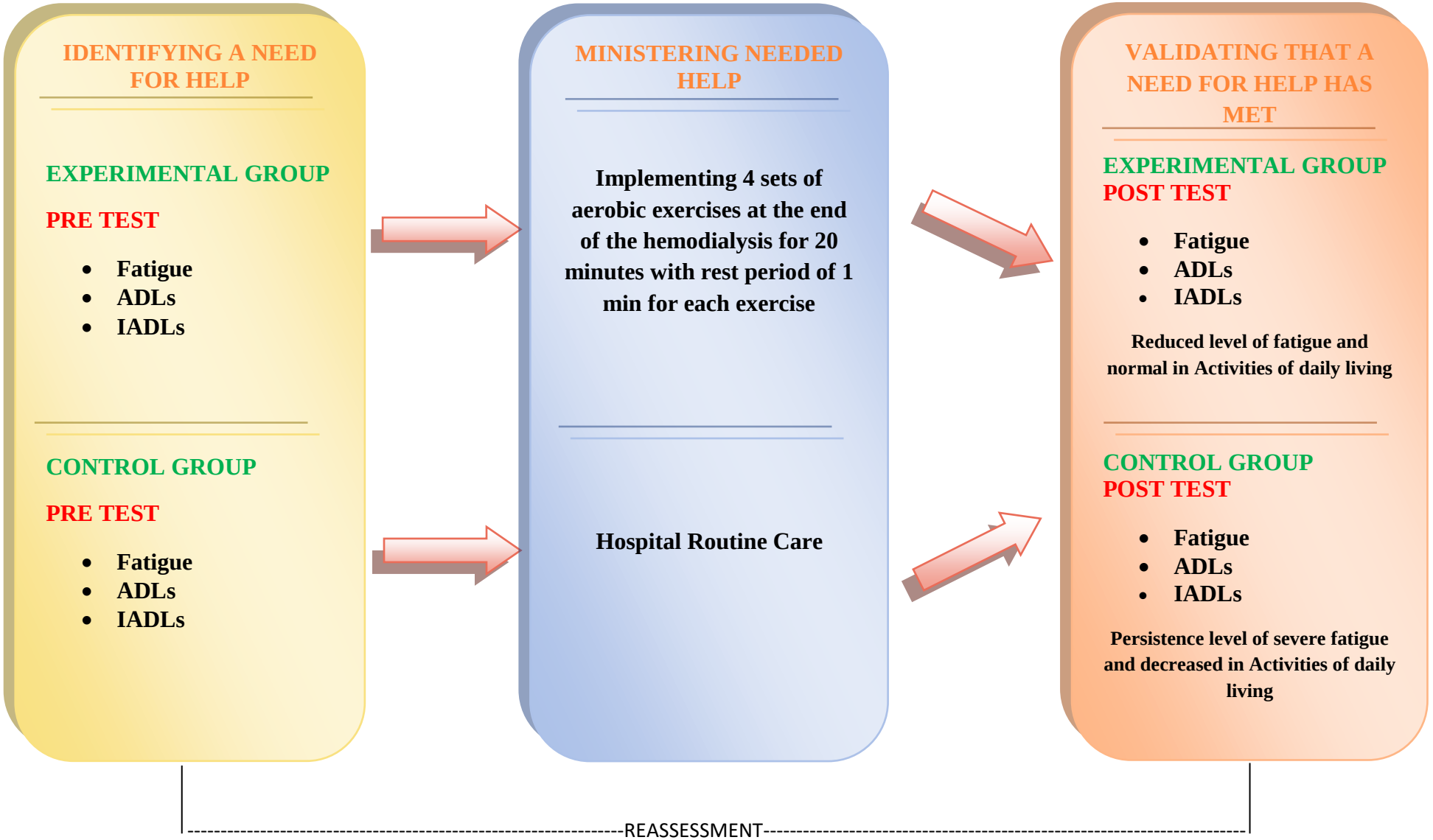


FIGURE 1.9: CONCEPTUAL FRAMEWORK OF WEIDENBACH'S HELPING ART OF CLINICAL NURSING THEORY

1.10 OUTLINE OF THE REPORT

Chapter 1: Dealt with Background of the study, Need for the study, Statement of the problem, Objectives, Operational Definition, Research Hypothesis, Assumptions, Conceptual Framework and Delimitation of the study.

Chapter 2: Deals with review of literature.

Chapter 3: Presents the methodology of the study and plan for data analysis.

Chapter 4: Focuses on data analysis and data interpretation.

Chapter 5: Enumerate the discussion of the study.

Chapter 6: Gives the summary, conclusions, implications, limitations and recommendations for the study.

The study report ends with selected bibliography and appendices.

REVIEW OF LITERATURE

Review of literature is an essential component of the research study as it provides a broad understanding of the research problem. A review of related literature involves the systemic identification, location scrutiny, and summary of written materials that contains information on research problems **(Polit and Hunger 1998).** Keeping this in mind the investigator probed into the accessible sources and gained in depth understanding from the related studies. It gives a theoretical base for the research and help to determine the nature of research. An extensive review of literature was done to gain insight into the problem under study and collect maximum information for layering the foundation of the study.

The review of literature related to the present study was mentioned under the following heading as follows:

LITERATURE RELATED TO

SECTION 2.1: Studies related to hemodialysis

SECTION 2.2: Studies related to aerobic exercise among hemodialysis patients

SECTION 2.3: Studies related to fatigue and activities of daily living among hemodialysis patients.

SECTIONS 2.1 STUDIES RELATED TO HEMODIALYSIS

Fram.D, et al. (2015) has done a case control study to evaluate risk factors for the development of bloodstream infections in patients undergoing hemodialysis. They investigated 162 chronic renal disease patients on hemodialysis who presented with positive blood cultures. Controls were hemodialysis patients from the same institution who did not present with positive blood cultures during the study period. Result showed that the patients who had a central venous catheter had an 11.2-fold increased chance of developing bloodstream infections compared with patients who had an arteriovenous fistula for vascular access.

Gerasimoula.K., et al. (2015) conducted a study on the quality of life of hemodialysis patients. The sample studied consisted of 320 patients undergoing hemodialysis

in one-day dialysis center. Data were collected by the completion of a specially designed questionnaire which apart from the socio-demographic and clinical variables, it also included the scale Missoula-VITAS Quality of Life Index (MVQOLI) for assessing quality of life. It was found that the increasing duration of hemodialysis session entailed poorer quality of life ($p<0,001$). These results were largely confirmed by multiple linear regressions. Socio-demographic and clinical characteristics seems to influence the quality of life in hemodialysis patients.

Moniek.W.M., et al. (2015) studied the trends in the choice of first dialysis modality and related these to variation in patient and technique survival and kidney transplant rates in Europe over the last 20 years. Analyses were repeated using propensity score matching to control for confounding by indication. Although initiating RRT on PD was associated with favorable patient survival when compared with starting on HD treatment, PD was often not selected as initial dialysis modality; they observed a significant decline in PD use and stabilization in HD use. These observations were explained by the lower incidence rate of PD and HD and the increase in pre-emptive transplantation.

Reddenna.L., et al. (2014) a comprehensive descriptive study was aimed to prevent the complications of kidney disease, that the kidneys are a pair of vital organs that perform many functions to keep the blood clean and chemically balanced. The two most common causes of kidney disease are diabetes and high blood pressure. The National Kidney Foundation recommends three simple tests to screen for kidney disease: a blood pressure measurement, a spot check for protein or albumin in the urine, and a calculation of glomerular filtration rate based on a serum creatinine measurement. Awareness of hemodialysis patients on the disease, medication, diet along with the life style modifications through the patient education was found to be very helpful for the patients to control their risk factors and to improve the compliance to the dosage regimen.

SECTION 2.2 STUDIES RELATED TO AEROBIC EXERCISE AMONG HEMODIALYSIS PATIENTS.

Geovana.M.A.,et.al.,(2017) the study was conducted to implement a structured resistance exercise (RE) program during the hemodialysis sessions is a safe and effective intervention that helps to improve physical performance, nutritional status, quality of life, anabolic response, and muscle strength, being also effective to reduce inflammation and

PEW. Chronic kidney disease is a catabolic state that activates different intracellular signaling pathways that decrease protein synthesis and increase protein degradation. There is enough evidence to establish the safety and benefits of performing exercise in patients on hemodialysis, however, there are other lines of research that are being developed to support this. It is necessary to continue evaluating exercise in prospective and long term studies.

Song.Y.Y., et al. (2017) a meta-analysis was conducted to identify whether exercise training is beneficial in the treatment of the symptoms of RLS, depression, poor sleep quality, and fatigue in patients receiving HD. To identify randomized controlled trials (RCTs) comparing exercise training with routine care on RLS, depression, sleep quality, and fatigue among HD patients. The effect size combinations for sleep quality were not performed owing to the sensitivity analysis results. Exercise training may help HD patients to reduce the severity of RLS, depression, and fatigue. More high-quality RCTs with larger samples and comparative RCTs focused on different exercise regimens are needed.

Larun.L., et al. (2016) conducted a research study with randomized controlled trial to determine the effects of exercise therapy (ET) for patients with CFS as compared with any other intervention or control. Exercise therapy versus 'passive control. Exercise therapy versus other active treatment cognitive treatment, supportive therapy, pacing, pharmacological therapy such as antidepressants. Exercise therapy in combination with other specified treatment strategies versus other specified treatment strategies. Patients with CFS may generally benefit and feel less fatigued following exercise therapy, and no evidence suggests that exercise therapy may worsen outcomes. The effectiveness of exercise therapy seems greater than that of pacing but similar to that of CBT.

Tao.X., et al. (2015) involved in a randomized, two-parallel group trial study to show the effectiveness of improving physical function and optimizing well-being. The purpose of this study was to examine the effects of a 12-week nurse-led case management program on home exercise training for hemodialysis patients Hemodialysis units in two tertiary hospitals in Nanjing, mainland China. 130 adult patients who have been in stable condition while on dialysis treatment for more than 3 months were recruited and randomly assigned to either the study group ($n = 57$) or the control group ($n = 56$). The intervention was to facilitate patients in performing regular exercise at home. Outcome measures, including gait speed, 10-repetition sit-to-stand performance, and quality of life were collected at baseline and at 6 and 12 weeks into the program. Home exercise using a nurse-led case

management approach is practical and effective in improving the physical function and self-perceived health of stable hemodialysis patients.

Maniam.R., et al. (2014) conducted a quasi experimental study to determine the effectiveness of a pre-dialysis low-to-moderate-intensity exercise programme for reducing fatigue and improving sleep disorders among long-term hemodialysis patients. An exercise programme was conducted three times a week for 12 weeks before long-term hemodialysis patients underwent dialysis at two centers. The patients were categorised into either the exercise group (n = 28) or control group (n = 27). The latter was asked to maintain their current lifestyles. Assessments of fatigue and sleep disorder levels were performed for both groups using self-reported questionnaires at baseline and after intervention. Results indicated the improvements in fatigue level in the exercise. Simple low-to-moderate-intensity exercise is effective for improving fatigue, sleep disorders and the overall quality of life among hemodialysis patients.

Sheng.K., et al. (2014) conducted a study to evaluate the efficacy and safety of intradialytic exercise for HD patients. The reference lists of eligible studies and relevant reviews were also checked. 24 studies of 997 patients were included. Compared with control, intradialytic exercise significantly improve, no significant improvements were found in the mental function of life. There was no significant difference with respect to musculoskeletal and cardiovascular complications between the intradialytic exercise groups and control groups. Intradialytic exercise can improve Kt/V, VO (2peak), and the physical quality of life, and intradialytic exercise is safe for HD patients. Therefore, we put forward the suggestion that clinical guideline be updated to inform clinicians on the benefits of intradialytic exercise on HD patients.

Mohesin.R., et al. (2013) conducted a study to determine the impact of an 8-weeks intradialytic exercise program (consisting of 15 minutes low-intensity exercise during the first 2 hours of dialysis) on dialysis efficacy. In an open randomized controlled trial, a total of 50 clinically stable hemodialysis patients were enrolled into the study and randomly allocated into two groups: the aerobic exercise group (n=25) and the control group (n=25). Aerobic exercises were done in the intervention group for 15 min/day, three times a week for 2 months. The dialysis efficacy was assessed prior to and at the end of each month of the program. The efficacy of dialysis increased at the end of the first month and remained elevated for the duration of the program in the exercise group ($p<0.05$). A simplified aerobic

exercise program has increased the efficacy of dialysis and may be considered as a safe, complementary and effective modality for hemodialysis patients.

SECTION 2.3 STUDIES RELATED TO FATIGUE AND ACTIVITIES OF DAILY LIVING AMONG HAEMODIALYSIS PATIENTS

Bossola.M., et al. (2018) involved in a study to investigate possible differences in the prevalence and severity of symptoms between fatigued and not fatigued patients on chronic Hemodialysis. They studied 137 patients: 107 (78.1%) were fatigued and 30 (31.9%) were non-fatigued. The prevalence of dry skin, itching, muscle soreness, bone or joint pain, restless legs, shortness of breath, feeling sad, feeling anxious, difficulty concentrating, and difficulty becoming sex aroused was significantly higher. Restless legs, feeling sad, difficulty concentrating, and difficulty becoming sex aroused were symptoms independently associated with fatigue. The severity of dry skin, trouble staying asleep, and bone/joint pain was higher in fatigued patients. This finding suggests the need to accurately and routinely define the symptom burden of chronic hemodialysis patients and may help to investigate eventually common underlying pathogenic mechanisms of symptoms in these patients.

Kangh.SH., et al. (2018) conducted a retrospective cohort study to evaluate the effects of physical activity on various aspects in Asian dialysis patients. Study participants were selected from 27 hospitals or dialysis centers in Korea (n = 1611). The participants were divided into 3 groups according to the degree of regular exercise: Inactive group, Intermediate group, and Active group. The proportions of patients with frailty and the presence of each component decreased as physical activity increased. The number of participants with a history of fall during the last 12 months was 149 (20.5%) in the Inactive group, 88 (16.9%) in the Intermediate group, and 48 (13.2%) in the Active group. Physical component scale and mental component scale scores increased as physical activity increased. The survival rate for all-cause death at 500 days was 95.5% in the Active group, 95.2% in the Intermediate group, and 93.5% in the Inactive group. High physical activity was associated with favorable results for most health-related quality of life scale scores, including frailty, disability, and exhaustion, in Korean dialysis patients.

Zuo.M., et al. (2018) investigated the major factors affecting fatigue symptoms and examined the relationships between fatigue symptoms and subjective and objective indicators in patients on hemodialysis (HD). Patients on HD who met the inclusion criteria were chosen from two grades: A tertiary general hospitals by convenience sampling and cross-sectional

survey methods. A total of 511 patients were included in the study. The morbidity rate of fatigue in patients on HD was 61.6%, and the median fatigue level was 3.91. Fatigue and subjective indicators showed a mild-moderate relationship whereas a weak correlation was found between fatigue and objective indicators. The prevalence of fatigue symptoms was high and the level of fatigue was moderate in patients on HD. Subjective and objective indicators can both affect fatigue symptoms in patients on HD.

Ju.A., et al. (2017) aimed to identify and evaluate the characteristics and psychometric properties of patient-reported outcome measures for fatigue in patients receiving hemodialysis, to inform the selection of a robust and feasible measure for use in randomized trials in hemodialysis. Systematic review of outcome measures for fatigue, in patients receiving hemodialysis. They assessed the general characteristics (eg, number of items and cost) and psychometric properties of all measures. A very wide range of measures have been used to assess fatigue in patients receiving hemodialysis, each varying in content and length. Many have limited validation data available in this population. A standardized and psychometrically robust measure that captures dimensions of fatigue that are important to patients is needed to estimate and improve this disabling complication of hemodialysis.

KyungSonga.M., et al. (2017) involved in longitudinal observational study to evaluate 1-year linear trajectories of patient-reported dimensions of quality of life among patients receiving dialysis. 227 patients involved from 12 dialysis centers. Participants completed an hour-long interview monthly for 12 months. Each interview included patient-reported outcome measures of overall symptoms (Edmonton Symptom Assessment System), physical functioning (Activities of Daily Living/Instrumental Activities of Daily Living), cognitive functioning (Patient's Assessment of Own Functioning Inventory), emotional well-being (Center for Epidemiologic Studies Depression Scale, State Anxiety Inventory, and Positive and Negative Affect Schedule), and spiritual well-being (Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale). Multidimensional patient-reported quality of life varies widely from month to month regardless of whether overall trajectories improve or worsen over time. Additional research is needed to identify the best approaches to incorporate patient-reported outcome measures into dialysis care.

Morishita.S., et al. (2017) investigated that the exercise improves aerobic capacity, muscular functioning, cardiovascular function, walking capacity, and health-related quality of life (QOL) in patients with chronic kidney disease (CKD) and dialysis. They review the evidence that physical function and physical activity play an important role in mortality for

patients with CKD and dialysis. Numerous studies suggest that higher exercise capacity, muscle strength, ADL, and physical activity contribute to lower mortality in patients with CKD and dialysis. Physical function is associated with mortality in patients with CKD and dialysis. Increasing physical function may decrease the mortality rate of patients with CKD and dialysis. Physicians and medical staff should recognize the importance of physical function in CKD and dialysis. In addition, exercise is associated with reduced mortality among patients with CKD and dialysis.

Amini., et al. (2016) involved in a randomized double-blind study to identify the effects of progressive muscle relaxation (PMR) and aerobic exercise on anxiety, sleep quality, and fatigue in patients with chronic renal failure undergoing hemodialysis were evaluated. 100 hemodialysis patients were randomly assigned to three groups: PMR, aerobic exercise, and control. Patients performed relaxation and aerobic exercise daily for 60 days. Questionnaires of anxiety, sleep quality, and fatigue were completed by participants before and after the interventions. PMR program significantly decreased general anxiety, trait anxiety, state anxiety, and Beck anxiety and aerobic exercise significantly reduced beck anxiety. PMR program and aerobic exercise both significantly improved sleep quality in hemodialysis patients. Results showed better function of PMR compared to aerobic exercise in improving the symptoms of anxiety, sleep disorders, in hemodialysis patients.

Si-Yuan Wang., et al. (2016) involved in a study to assess fatigue in hemodialysis patients and to investigate risk factors of fatigue in Chinese patients receiving maintenance hemodialysis (MHD) in China. Therapy-Fatigue (FACIT-Fatigue), the Family APGAR Index (APGAR), the medical outcomes study health status-Social Functioning subscale (SF-36,SocF), and the Pittsburgh sleep quality index (PSQI). The multiple linear regression model was used to relate parameters with the FACIT-Fatigue score. Results concluded that fatigue is related to sleep disturbance, social and family functioning, taking physical exercise time, comorbidity condition, Kt/V and serum creatinine level in Chinese MHD patients.

Anding.K., et al. (2015) involved in a randomized single centre clinical trial on the effect of a structured physical exercise programme (SPEP) during haemodialysis (HD) assessing compliance and clinical benefit are scarce. Samples of 46 patients with HD performing an SPEP over 5 years were taken. The SPEP (twice/week for 60 min during haemodialysis) consisted of a combined resistance (8 muscle groups) and endurance (supine bicycle ergometry) training. Average power per training session, maximal strength tests (maximal exercise repetitions/min), three performance-based tests for physical function,

SF36 for QoL were assessed in the beginning and every 6 months thereafter. Moreover, a quantitative correlation analysis revealed a close association (r=0.8) between large improvement of endurance capacity and weak physical condition (HA). The exercise programme described improves physical function significantly and can be integrated into a HD routine with a high long-term adherence.

Aoike.D.K., et al. (2015) conducted a study on home-based exercise has been shown to provide benefits in terms of physical capacity in the general population, but has been investigated in patients with chronic kidney disease (CKD). To evaluate the impact of a home-based aerobic training on the cardiopulmonary and functional capacities of overweight non-dialysis-dependent patients with CKD (NDD-CKD). Twenty-nine sedentary patients were randomly assigned to a home-based exercise group ($n = 14$) or to a control group ($n = 15$) that remained without performing exercise. Aerobic training was performed three times per week for 12 weeks. Results showed a significant increase, ranging from 8.3 to 17 %, was observed in the cardiopulmonary capacity parameters, such as maximal ventilation ($p = 0.005$), VO_{2peak} ($p = 0.049$), ventilatory threshold ($p = 0.040$) and respiratory compensation point ($p < 0.001$), of the exercise group. The results concluded that the home-based aerobic exercise program was feasible, safe and effective for the improvement in the cardiopulmonary and functional capacities of overweight NDD-CKD patients.

Johansen.L., et al. (2015) the aim of the study is to identify the level of activities of daily living using different scales among hemodialysis patients, were the evaluated the Physical activity questionnaires usually focus on moderate to vigorous activities and may not accurately capture physical activity or variation in levels of activity among extremely inactive groups like dialysis patients. They administered a new physical activity questionnaire designed to capture activity in the lower end of the range, the Low Physical Activity Questionnaire (LoPAQ). Outcome measures were correlation with a validated physical activity questionnaire, the Minnesota Leisure Time Activity (LTA) questionnaire and with self-reported physical function (physical function score of the SF-36) and physical performance (gait speed, chair stand, balance, and short physical performance battery). We also determined whether patients who were frail or reported limitations in activities of daily living were less active on the LoPAQ. Frail patients and patients with activities of daily living limitations were less active than those who were not frail or limited. The LoPAQ performed similarly to the Minnesota LTA questionnaire in our cohort despite being shorter and easier to administer.

Matsufuji.S., et al. (2015) involved in a randomized controlled trial to examine wheather chair stand exercise can improve ADL of hemodialysis patients. Outpatients on hemodialysis older than 60 years (61-79 years). Twelve weeks of intervention with chair stand exercise, 3 sessions/week versus the control exercise (stretch, 1 session/week). Among the 27 patients who were randomized, 17 completed the study. Among the secondary outcomes, significant difference was noticed in the changes in thigh circumference and the physical component summary score of health-related quality of life by Medical Outcome Study 36-Item Short-Form Health Survey . Results showed that Chair stand exercise improved ADL in the hemodialysis patients aged older than 60 years.

Zyga.S., et al. (2015) involved in a quantitative study to assess the levels of fatigue and demographic factors affecting it among patients with End Stage Renal Disease undergoing Hemodialysis in two Dialysis Units of Hospitals in Athens Region. 129 hemodialysis patients completed the Greek Version of the Fatigue Assessment Scale (FAS). Demographic data of patients was recorded. The mean FAS score was 24.99. 49 patients (38.0%) were non fatigued, 61 patients (47.3%) were fatigued, and 19 patients (13.7%) were extremely fatigued. Results showed that Higher levels of fatigue were among hemodialysis patients residing in urban areas, in those with low educational level and unemployed.

RESEARCH METHODOLOGY

Methodology of research organizes all the components of study in a way that most likely will lead to valid answers for the problems that have been posted **(Burns and Groove, 2008)**. This chapter deals with the methodology adopted for the study. It includes the research approach, research design, variables, setting, population, sample, and criteria for selection of the sample, sample size, sampling technique, development and description of the tool, content validity, pilot study, and reliability of the tool, data collection procedure and plan for data analysis.

3.1 RESEARCH APPROACH

The research approach adopted in this study is Quantitative Research approach in nature focusing on the effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis.

3.2 RESEARCH DESIGN

The research design explicit blue print for research activities to be carrying out .The research design adopted for the experimental research design.

Group	**Pre-Test (O_1)**	**Intervention (X)**	**Post- test (O_2)**
Experimental Group	To assess the pretest level of fatigue and ADLs.	Demonstrate the aerobic exercises and advice the subjects to repeat the set of exercises like simple seated hamstring curls, reverse crunch, simple arm rotation and biceps curl on right and left extremities totally for 20min and with resting period in between the exercises.	To assess the post test level of fatigue and ADLs.
Control Group		Routine hospital care	

3.3 VARIABLES OF THE STUDY

3.3.1 Independent Variable

The independent variable in this study is aerobic exercises.

3.3.2 Dependent Variables

The dependent variable in this study is level of fatigue and activities of daily living among patients undergoing hemodialysis

3.3.3 Extraneous variables

The extraneous variable in this study includes Age, sex, marital status, occupation, education, area of residence, family history of CKD, duration of dialysis, frequency of dialysis, and duration of illness.

3.4 SETTING OF THE STUDY

The study is conducted at Deepam Pallavaram Hospital, which is a multi speciality hospital providing service to all divisions of health care including hemodialysis on outpatient basis with full time doctor's services. Hemodialysis was taken over by NEPHROPLUS CARE CENTRE with advanced scientific management of patients and also well equipped with modern technologies for patient care. They treat 30 patients in daily basis.

Deepam hospital, Tambaram is a multi specialty hospital was providing services to all divisions of health care including hemodialysis on as outpatient basis with 24hrs doctor and staff services with scientific management of patient's and modern technologies equipments, all emergency equipment and medicine's they treat 40 patients daily.

3.5 POPULATION

3.5.1 Target Population

The target population of the study includes all the patients undergoing hemodialysis.

3.5.2 Accessible Population

The accessible population of the study includes patients with age group of 35 – 65 years undergoing hemodialysis at Deepam Hospital and Nephroplus care centre. All the patients medically diagnosed with chronic kidney disease in Chennai.

3.6 SAMPLES

The samples were 60 patients with chronic kidney disease who are undergoing hemodialysis and fulfilling the inclusive criteria.

3.7 SAMPLE SIZE

The sample comprises of 60 patients who are undergoing hemodialysis, among them 30 patients in Experimental group, 30 patients in Control group.

3.8 SAMPLE SELECTION CRITERIA

3.8.1 INCLUSIVE CRITERIA

1. Patient diagnosed as chronic kidney disease undergoing hemodialysis.
2. Patients undergoing hemodialysis for the period of $\leq$ 2 years.
3. Hemodialysis patients with the age group of 35-65 years.
4. Patient who are undergoing hemodialysis only.
5. Patient who can read and speak Tamil and English.
6. Patients with systemic illness or other morbid conditions like Diabetic Mellitus or Hypertension were included.
7. Patients undergoing hemodialysis twice and thrice in a week

3.8.2 EXCLUSIVE CRITERIA

1. Patients who are diagnosed with other systemic illness CVD
2. Mentally challenged patients.

3.9 SAMPLING TECHNIQUE

The subjects of the present study were selected by simple random sampling technique (through lottery method).

3.10 DEVELOPMENT AND DESCRIPTION OF THE TOOL

After an extensive review of literature, discussion with experts and the investigator's professional experience, the tool was identified to assess the level of fatigue and ADLs. The

tool were standardized – Fatigue severity scale, Lawton Instrumental activities of daily living (IADLs), and Katz Activities of daily living (ADLs).

The tool constructed for the study consists of two parts:

Part I: Data collection tool

Part II: Intervention tool

3.10.1 PART I: DATA COLLECTION TOOL

SECTION A: Assessment of Demographic Variables

Personal data sheet reveals the information about the Demographic variable: this included study participant age, sex, education status, marital status, occupation, area of residence, duration of illness, genetic predisposition, years of hemodialysis and frequency of hemodialysis.

SECTION B: Standardized scales for fatigue and ADLS

S. No.	Tools	Questions
1.	Fatigue Severity Scale	9
2.	Lawton instrumental activities of daily living (IADL) scale.	6
3.	Katz index of independence in activities of daily living (ADL)	8

SCORING AND INTERPRETATION

1. FATIGUE SEVERITY SCALE

FSS Mean Score = Total score of 9 questions divided by 9

SCORING	CATEGRIES
< 36	No Fatigue
≥ 36	Severe Fatigue.

2. THE LAWTON INSTRUMENTAL ACTIVITIES OF DAILY LIVING (IADL) SCALE.

IADL add all the 8 questions 1+2+3+4+5+6+7+8 = -------

SCORING	CATEGRIES
≤ 4	Fully Dependent
5- 7	Moderately Dependent
8	Fully Independent Functioning

3. KATZ INDEX OF INDEPENDENCE IN ACTIVITIES OF DAILY LIVING (ADL)

ADL add all the 6 questions 1+2+3+4+5+6 = -------

SCORING	CATEGRIES
≤ 2	Fully Dependent
3- 5	Moderately Dependent
6	Fully Independent Functioning

3.10.2 PART II: INTERVENTION TOOL

The intervention tool was a standard tool which was added after reviews, the investigator planned the intervention on aerobic exercises and demonstrated to the patients and observed the same exercises done by the patients.

Demonstration consists of 4 exercises

S. No.	Exercises	Minutes/ Rest Time
1.	Simple Seated Hamstring Curls (Leg Folding) right and left legs each.	2 min each legs / Rest time 1 min
2.	Reverse Curls (Leg Lifting) right and left legs	2 min each hands/ Rest time 1 min
3.	Simple Arm Rotation (hand rotation) right and left hand (fistula hand excluded during dialysis)	2 min each hands/ Rest time 1 min
4.	Biceps curls (Hand lifting) right and left hand (fistula hand excluded during dialysis)	2 min each hands/ Rest time 1 min

Totally 16 minutes with rest period of 4 minutes.

3.11 CONTENT VALIDITY

The content validity of the data collection tool and the intervention tool was ascertained with the expert's opinion in the following field of expertise,

- Medical Expert - 2
- Medical Surgical nursing experts - 4
- Statistician - 1

Modifications suggested by the experts were incorporated and tool was modified accordingly. These changes were incorporated in the tool. All the experts gave their consents and then the tool was finalized.

3.12 ETHICAL CONSIDERATION

The research study was approved by the institutional Ethics Committee of Venkateswara Nursing College which was held on 3/7/2017 and the ethical principles followed were:

1. BENEFICIENCE

The investigator followed the fundamental ethical principle of beneficence by adhering to

a) The right to freedom from harm and discomfort

The study was beneficial for the participants, as the use of demonstration enhanced their level of fatigue and activities of daily living and implement in to their day to day life. No harm or discomfort was caused to any of the samples.

b) The right to protection from exploitation

The investigator explained the procedure and nature of the study to the participants and to the medical director and ensured that none of the participants would be exploited.

2. RESPECT FOR HUMAN DIGNITY

The investigator followed the second ethical principle of respect for human dignity. It includes the right to self-determine and right to self disclosure.

a) The right to self – determination

The investigator gave full freedom to the participants to decide voluntarily whether to participate in the study or to withdraw from the study and the right to ask questions and gave the same freedom to the medical director to make the patients to participate in the study or to withdraw from the study and the right to ask questions.

b) The right to full disclosure

The investigator has fully described the nature of the study, the person's right to refuse participation and the investigator's responsibilities based on which the written permission was obtained from the medical director of Deepam Hospital, Tambaram and Nephroplus, Pallavaram, Chennai. The written consent was obtained from the patients to assess the level of fatigue and activities of daily living among hemodialysis patients.

3. JUSTICE

The investigator adhered to the third ethical principal of justice; it includes participant's right to fair treatment and right to privacy.

a) Right to fair treatment

The investigator selected the study participant's based on the research requirements. The investigator followed the hospital rules and regulations, during the period of data collection and during the intervention period. All the samples were treated fairly and no discrimination of any form was imposed on them.

b) Right to privacy

The investigator maintained the participant's privacy throughout the study.

4. CONFIDENTIALITY

The investigator maintained confidentiality of the data disclosed by the study participants.

3.13 RELIABILITY OF THE TOOL

In order to determine the Reliability of the tool test retest method was used and the tool was found to be reliable. The reliability if the tool was by test retest method found (r = 0.88), and the tool was considered as fit for proceeding with pilot study.

3.14 PILOT STUDY

A pilot study was conducted to assess the feasibility and practicability of the tool and it also helped to determine the plan of data analysis. Prior permission to conduct the study was obtained from the Managing Director of Deepam Hospital and Nephroplus care centre. The data collection was done in the month of January from 17.1.2018 to 23.01.2018. A total of 6 patients who fulfill the inclusive criteria were selected (experimental group 3 and control group 3) by simple random sampling technique (lottery method). The purpose of the study was explained to subjects and a written consent was obtained from them. Confidentiality was assured to all the subjects.

The data's was collected with the help of questionnaire. The tool used is a standardized Instrumental Activities of Daily Living scale, Activities of Daily Living scale and Fatigue Severity Scale. Data collected was analyzed using descriptive and inferential statistics. The result showed that they were significant difference among the post test level of fatigue and activities of daily living among experimental group than control group, the tool was found feasible to proceed for the main study.

3.15 DATA COLLECTION PROCEDURE

The main study was conducted after obtaining formal permission from the principal, Venkateswara Nursing College, ethical clearance from the ethical committee and permission from the Managing Director, Nephroplus care centre and Deepam Hospital, at Tambaram. The data was collected for a period of 4 weeks from 28.01.2018 to 28.02.2018.

A total of 60 samples who fulfilled the inclusive criteria for sample selection were selected using simple random sampling technique – Lottery method. The investigator selected 30 samples in experimental group and 30 samples in control group.

A brief self introduction along with an explanation of the purpose of the study was given to the inpatients. Informed written consent was obtained from them. At first, demographic details were obtained through structured profile followed by pre-test assessment of the level of fatigue and ADLs.

4 set of Aerobic exercises demonstrated to the experimental group for 20 mins and advised the patients to practice this in their home for next 14 days.

Post test assessment of the level of fatigue and activities of daily living was done on the 15^{th} day using Fatigue severity scale, Lawton Instrumental activities of daily living (IADLs), Katz Activities of daily living (ADLs), the data were organized for statistical analysis.

3.16 PLAN FOR DATA ANALYSIS PROCEDURE

Data collected analysis was done using descriptive and inferential statistics.

3.16.1 DESCRIPTIVE STATISTICS

- Frequency, percentage distribution was used to analyse the demographic variables among the hemodialysis patients.
- Mean and standard deviation was used to analyse the post test level of fatigue and activities of daily living among hemodialysis patients.

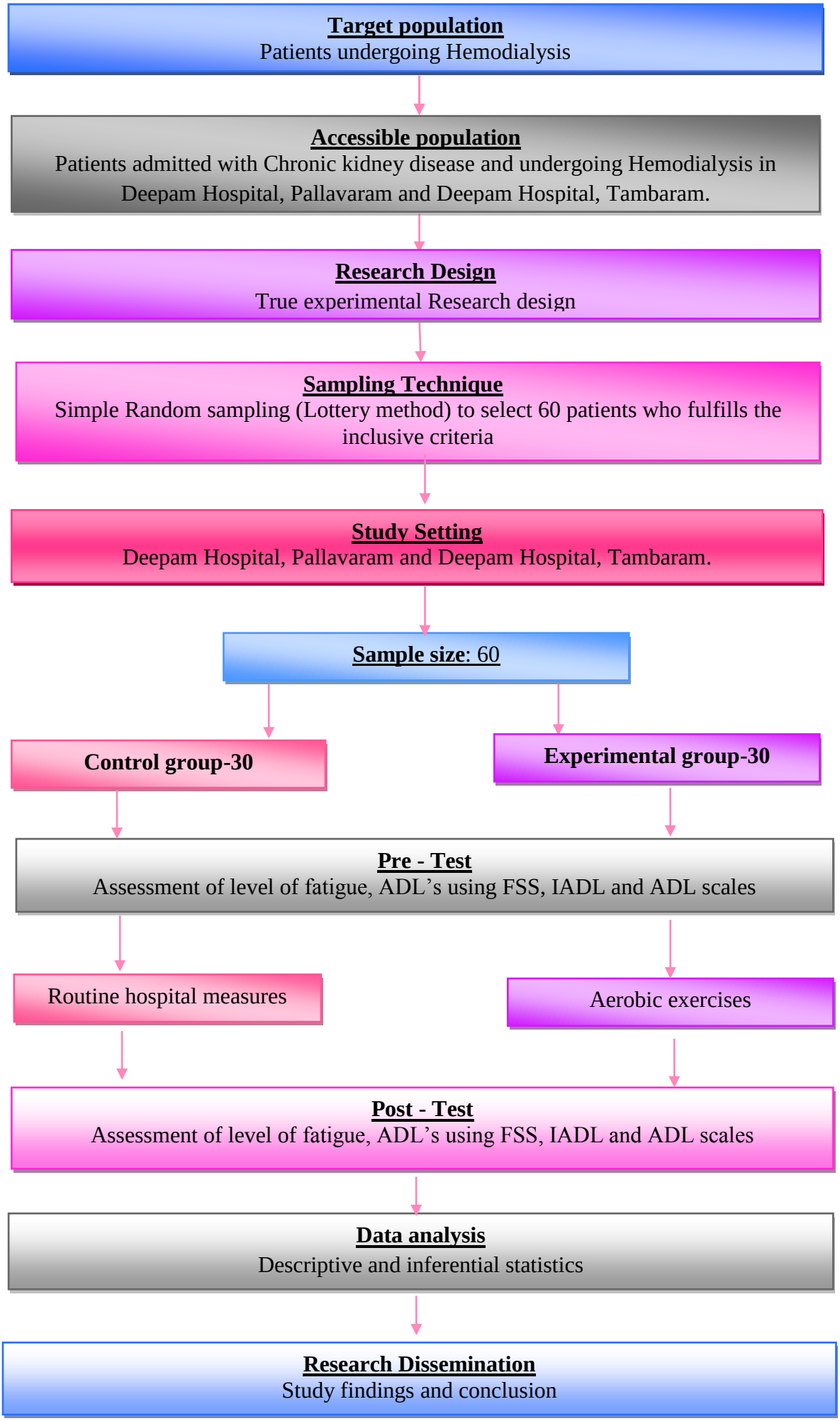
3.16.2 INFERENTIAL STATISTICS

- Unpaired “t” test was used to compare the pre and post test level of fatigue and ADLs in experimental.
- Paired “t” test was used to compare the pre and post test level of fatigue and ADLs with in control and experimental group.
- Chi square test was used to associate the level of fatigue and ADLs with selected demographic variables in experimental and control group.
- Regression and correlation analysis was used to assess the correlation between the level of fatigue and ADLs among hemodialysis patients in experimental group.

TABULATION OF PLAN FOR DATA COLLECTION

S.NO	Data Analysis	Methods	Remarks
1.	Descriptive statistics	Frequency and percentage	To assess the demographic variables of the sample
		Mean, standard deviation	To assess the level of pre and post-test fatigue and ADLs on aerobic exercises among hemodialysis patients.
2.	Inferential statistics	Paired 't' test	Paired t test will be used to compare pre and post test level of fatigue and ADLs with in control and experimental group.
		Unpaired 't' test	Unpaired t test will be used to compare between pre and post test level of fatigue and ADLs between experimental and control group.
		Chi-square test	To find the association between post-test fatigue and ADLs with their demographic variables.

Figure: 3.1Schematic Representations of Research Methodology



DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from 60 patients (30 Experimental and 30 Control) undergoing hemodialysis, to assess the effectiveness of aerobic exercises on ADLs and fatigue among hemodialysis patients in selected hospitals, Chennai. The data collected for the study was grouped and analyzed as per the objectives set for the study. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

ORGANIZATION OF DATA

The findings of the study were grouped and analyzed under the following sessions.

Section A : Description of the demographic variables.

Section B : Assessment of pretest and post test level of Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL) and severity of fatigue among patients undergoing hemodialysis in the experimental and control group.

Section C : Effectiveness of aerobic exercises among patients undergoing hemodialysis in the experimental and control group.

Section D : Relationship between post test Activities of Daily Living, Instrumental Activities of Daily Living and Fatigue scores among patients undergoing hemodialysis in the experimental and control group.

Section E : Association of post test level of Activities of Daily Living, Instrumental Activities of Daily Living and Fatigue among patients undergoing hemodialysis with their selected demographic variables in the experimental group.

SECTION A: DESCRIPTION OF THE DEMOGRAPHIC VARIABLES.

Table 4.1: Frequency and percentage distribution of demographic variables of patients underoging haemodialysis in experimental and control group.

N = 60(30+30)

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Age				
35 - 45 years	07	23.33	04	13.33
46 - 55 years	12	40.00	13	43.33
56 - 65 years	11	36.67	13	43.33
Sex				
Male	17	56.67	17	56.67
Female	13	43.33	13	43.33
Marital status				
Married	23	76.67	26	86.67
Single	06	20.00	02	6.67
Widow/Widower	01	3.33	01	3.33
Divorced	00	0.00	01	3.33
Educational status				
Graduate	12	40.00	10	33.33
Higher secondary school	06	20.00	03	10.00
High school	06	20.00	08	26.67
Primary / secondary	03	10.00	05	16.67
Illiterate	03	10.00	04	13.33
Occupation				
Sedentary worker	09	30.00	07	23.33
Moderate worker	02	6.67	02	6.67
Heavy worker	01	3.33	00	0.00
Homemaker	18	60.00	21	70.00
Area of residence				
Urban	18	60.00	18	60.00
Rural	11	36.67	12	40.00
Semi – Urban	01	3.33	00	0.00
Duration of Illness (CKD)				
<= 6 month	15	50.00	02	6.67
1 - 5 years	15	50.00	28	93.33
Family history of CKD				
Yes	07	23.33	01	3.33
No	23	76.67	29	96.67
Duration of Hemodialysis				
<6 months	21	70.00	06	20.00
1 - 2 years	09	30.00	24	80.00

Demographic Variables	Experimental Group		Control Group	
	No.	%	No.	%
Frequency of hemodialysis per week				
Weekly once	00	0.00	01	3.33
Weekly twice	25	83.33	13	43.33
Weekly thrice	05	16.67	16	53.33

The table 4.1 shows that in the experimental group, majority 12(40%) were in the age group of 46 – 55 years, 17(56.67%) were male, 23(76.67%) were married, 12(40%) were graduates, 16(60%) were homemakers, 18(60%) were from urban area, 15(50%) were suffering from illness for ±6 month and 1 – 5 years respectively, 23(76.67%) had no family history of CKD, 21(70%) were undergoing hemodialysis for <6 months and 25(83.33%) were undergoing hemodialysis twice in a week.

Whereas in the control group, majority 13(43.33%) were in the age group of 46 – 55 years and 56 – 65 years respectively, 17(56.67%) were male, 26(86.67%) were married, 10(33.33%) were graduates, 21(70%) were homemakers, 18(60%) were from urban area, 28(93.33%) were suffering from illness for 1 – 5 years, 29(96.67%) had no family history of CKD, 24(80%) were undergoing hemodialysis for 1 – 2 years and 16(53.33%) were undergoing hemodialysis thrice in a week.

SECTION B: ASSESSMENT OF PRETEST AND POST TEST LEVEL OF ACTIVITIES OF DAILY LIVING (ADL), INSTRUMENTAL ACTIVITIES OF DAILY LIVING (IADL) AND SEVERITY OF FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 4.2: Frequency and percentage distribution of pretest and post test level of Activities of Daily Living (ADL) among the patients undergoing hemodialysis in the experimental and control group.

N = 60(30+30)

Group	Activities of Daily Living (ADL)	Fully Dependent (≤2)		Moderately Dependent (3 – 5)		Fully Independent Functioning (6)	
		No.	%	No.	%	No.	%
Experimental Group	Pretest	29	96.67	01	3.33	00	00
	Post Test	00	00	17	56.67	13	43.33
Control Group	Pretest	27	90.0	03	10.0	00	00
	Post Test	26	86.67	04	13.33	00	00

The table 4.2 shows that in the experimental group, 29(96.67%) were fully dependent and only one (3.33%) was moderately dependent in the pretest, whereas in the post test, 17(56.67%) were moderately dependent and 13(43.33%) were fully independent.

In the control group, in the pretest 27(93.33%) were fullly dependent and only 3(6.67%) were moderately dependent whereas in the post test, 26(86.67%) were fully dependent and only 4(13.33%) were moderately dependent.

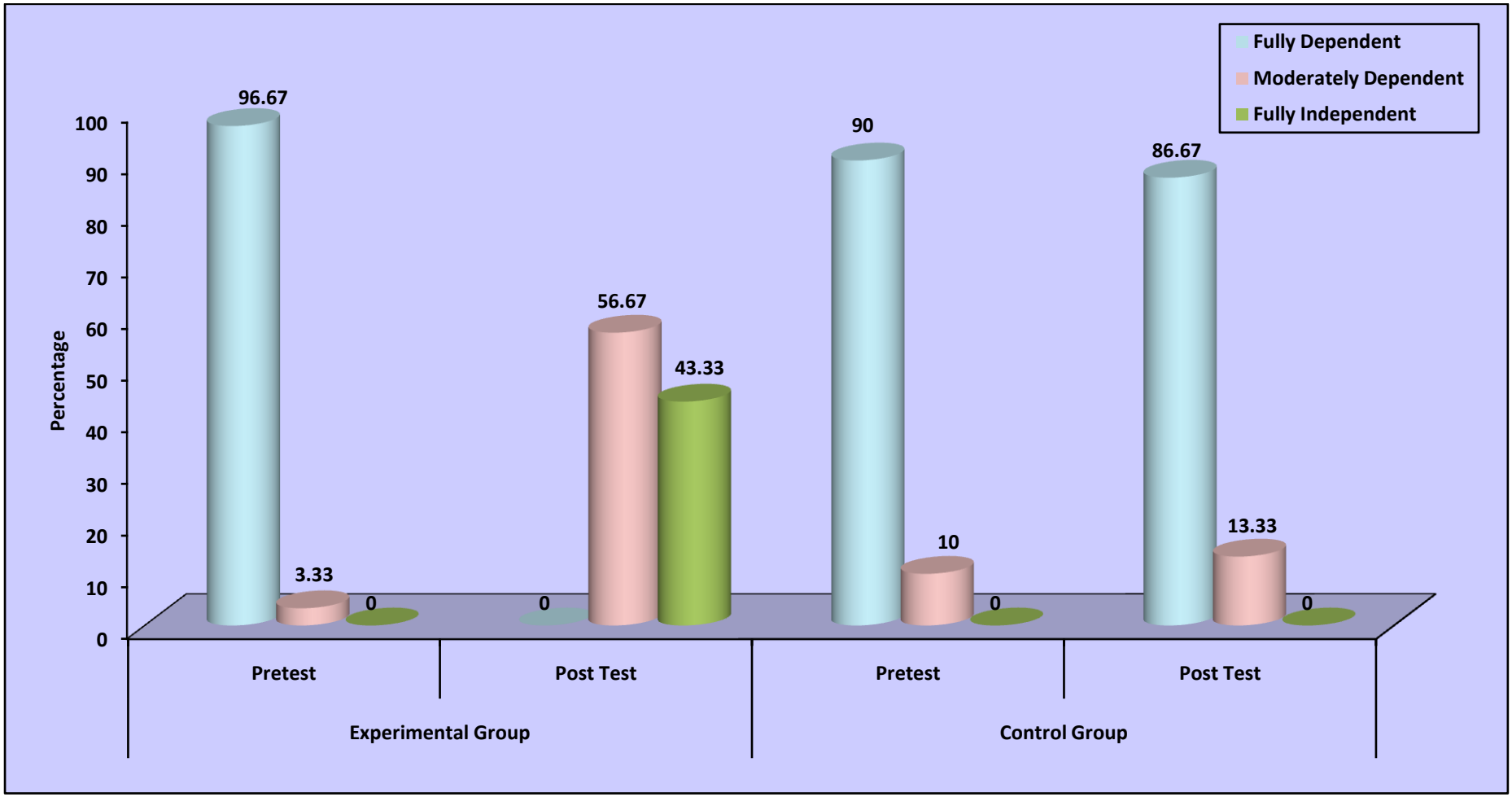


Figure 4.1: Percentage distribution of pretest and post test level of Activities of Daily Living (ADL) among patients undergoing hemodialysis in the experimental and control group

Table 4.3: Frequency and percentage distribution of pretest and post test level of Instrumental Activities of Daily Living (IADL) among patients undergoing hemodialysis in the experimental and control group.

N = 60(30+30)

Group	Instrumental Activities of Daily Living (IADL)	Fully Dependent (≤4)		Moderately Dependent (5 – 7)		Fully Independent Functioning (8)	
		No.	%	No.	%	No.	%
Experimental Group	Pretest	29	96.67	01	3.33	00	00
	Post Test	03	10.0	13	43.33	14	46.67
Control Group	Pretest	28	93.33	02	6.67	00	00
	Post Test	27	90.0	03	10.0	00	00

The table 4.3 shows that in the experimental group, 29(96.67%) were fully dependent and only one (3.33%) was moderately dependent in the pretest, whereas in the post test, 14(46.67%) were fully independent, 13(43.33%) were moderately dependent and only 3(10%) were fully dependent.

In the control group, in the pretest 28(93.33%) were fullly dependent and only 2(6.67%) were moderately dependent whereas in the post test, 27(90%) were fully dependent and only 3(10%) were moderately dependent.

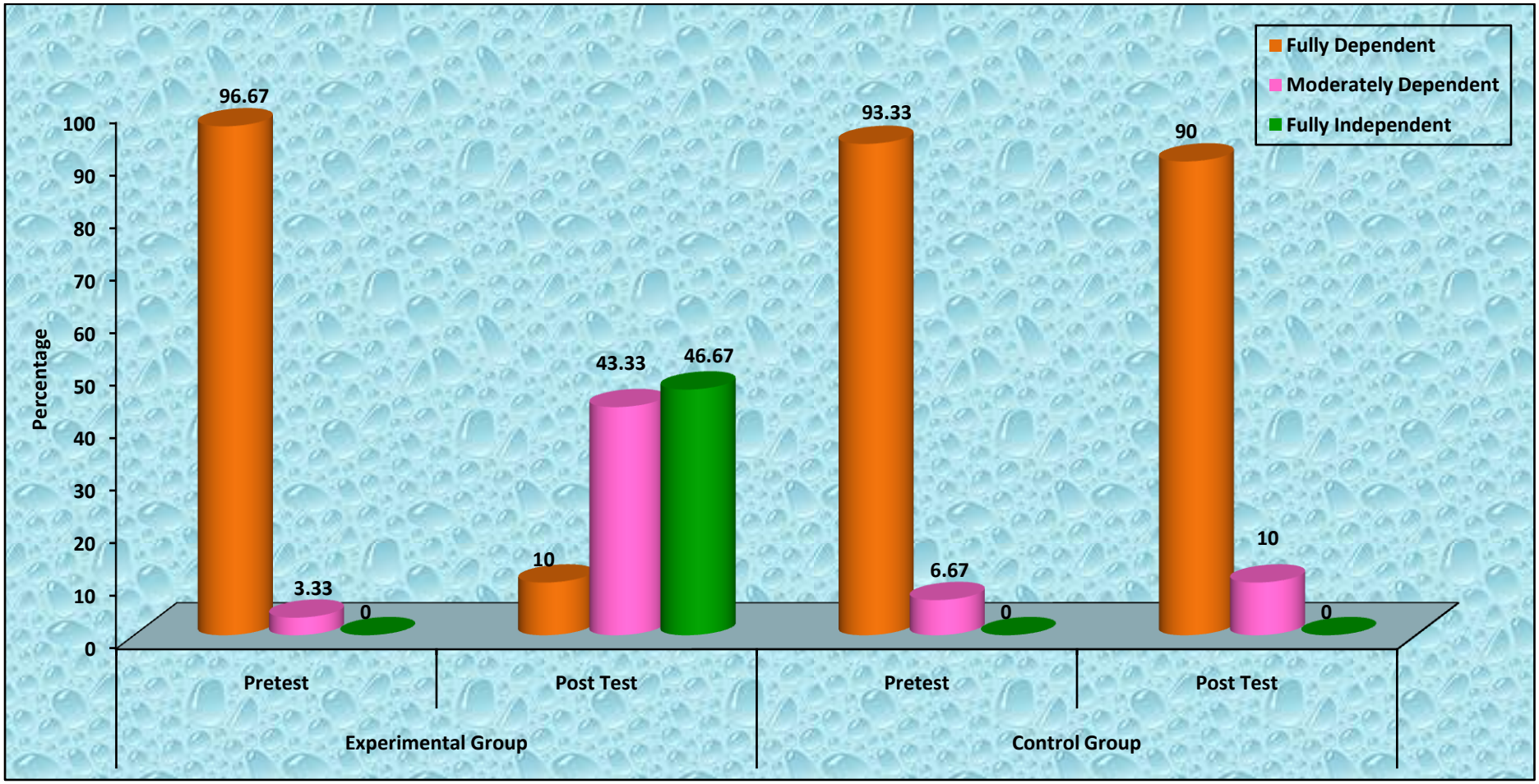


Figure 4.2: Percentage distribution of pretest and post test level of Instrumental Activities of Daily Living (IADL) among patients undergoing hemodialysis in the experimental and control group

Table 4.4: Frequency and percentage distribution of pretest and post test level of fatigue among patients undergoing hemodialysis in the experimental and control group.

N = 60(30+30)

Group	Fatigue	No Fatigue (<36)		Severe Fatigue (≥36)	
		No.	%	No.	%
Experimental Group	Pretest	00	00	30	100.0
	Post Test	26	86.67	04	13.33
Control Group	Pretest	00	00	30	100.0
	Post Test	02	6.67	28	93.33

The table 4.4 shows that in the experimental group, almost all 30(100%) had fatigue in the pretest whereas in the post test, 26(86.67%) had no fatigue and only 4(13.33%) had fatigue.

In the control group, in the pretest almost all 30(100%) had fatigue and in the post test, 28(93.33%) had fatigue and only 2(6.67%) had no fatigue.

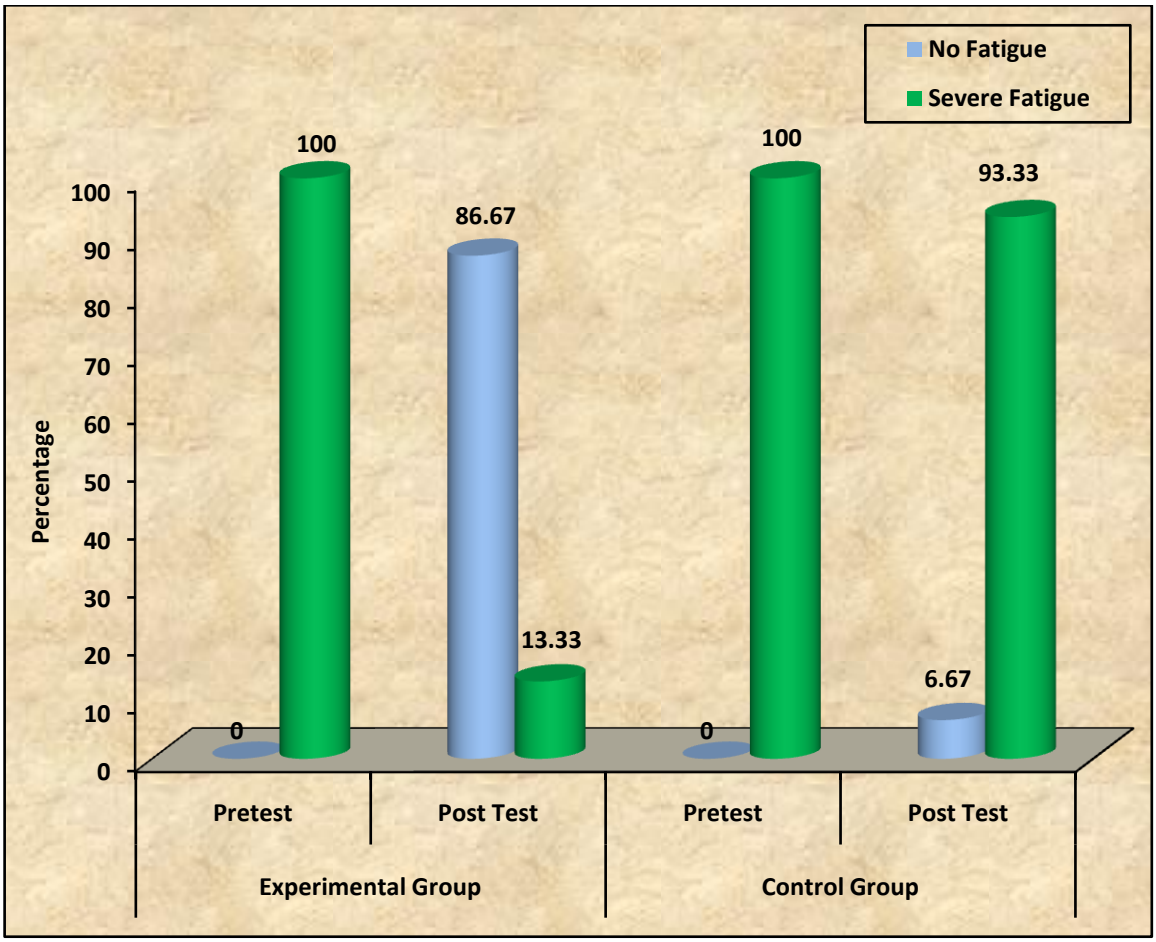


Figure 4.3: Percentage distribution of pretest and post test level of fatigue among patients undergoing hemodialysis in the experimental and control group

SECTION C: EFFECTIVENESS OF AEROBIC EXERCISES AMONG PATIENTS UNDERGOING HEMODIALYSIS IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 4.5: Comparison of pretest and post test level of Activities of Daily Living (ADL) among patients undergoing hemodialysis within the experimental and control group.

N = 60(30+30)

ADL	Pretest		Post Test		Mean Improvement Score	Paired 't' Test Value
	Mean	S.D	Mean	S.D		
Experimental Group	0.57	1.04	5.37	0.61	4.80	**t = 22.165 p = 0.000 S*** **
Control Group	0.80	1.24	0.90	1.27	0.10	t = 1.795 p = 0.083 N.S

***p<0.001, S – Significant, N.S – Not Significant**

The table 4.5 portrays that the in the experimental group pretest mean score of ADL was 0.57 ± 1.04 and the post test mean score was 5.37 ± 0.61. The mean improvement score was in the experimental group was 4.80. In the control group pretest mean score of ADL was 0.80 ± 1.24 and the post test mean score was 0.90 ± 0.61. The mean improvement score in control group was 0.10.

The calculated paired 't' value of t = 22.165 was found to be statistically highly significant at p<0.001 level. This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of ADLin the experimental group whereas in the control group the calculated paired 't' value of t = 1.795 was not found to be statistically significant.

Table 4.6: Comparison of pretest and post test level of Activities of Daily Living (ADL) among patients undergoing haemodialysis between the experimental group and control group.

ADL	Pretest		Post Test	
	Mean	**S.D**	**Mean**	**S.D**
Experimental Group	0.57	1.04	5.37	0.61
Control Group	0.80	1.24	0.90	1.27
Mean Difference Score	0.23		4.47	
Unpaired 't' Value	t = 0.789 p = 0.434 N.S		**t = 17.349** **p = 0.000** **S*****	

***p<0.001, S – Significant, N.S – Not Significant**

The table 4.6 portrays that the in the experimental group pretest mean score of ADL was 0.57 ± 1.04 and the post test mean score was 5.37 ± 0.61. The pretest mean difference score for experimental and control group was 0.23 and the post-test mean difference score for experimental and control group was 4.47.

The calculated unpaired 't' value of t = 0.789 in the pretest between the experimental and control group was not found to be statistically significant and this clearly indicates that there was no difference in the pretest level of ADL among patients undergoing hemodialysis in the experimental and control group. Whereas the calculated unpaired 't' value of t = 17.349 in the post test between the experimental and control group was found to be statistically significant at p<0.001 level and this clearly indicates that there was significant difference in the post test level of ADL among patients undergoing hemodialysis in the experimental and control group.

These findings clearly indicates that the aerobic exercises on Activities of daily living was found to be effective in improving the level of ADL among patients undergoing hemodialysis in the experimental group than the patients in the control group.

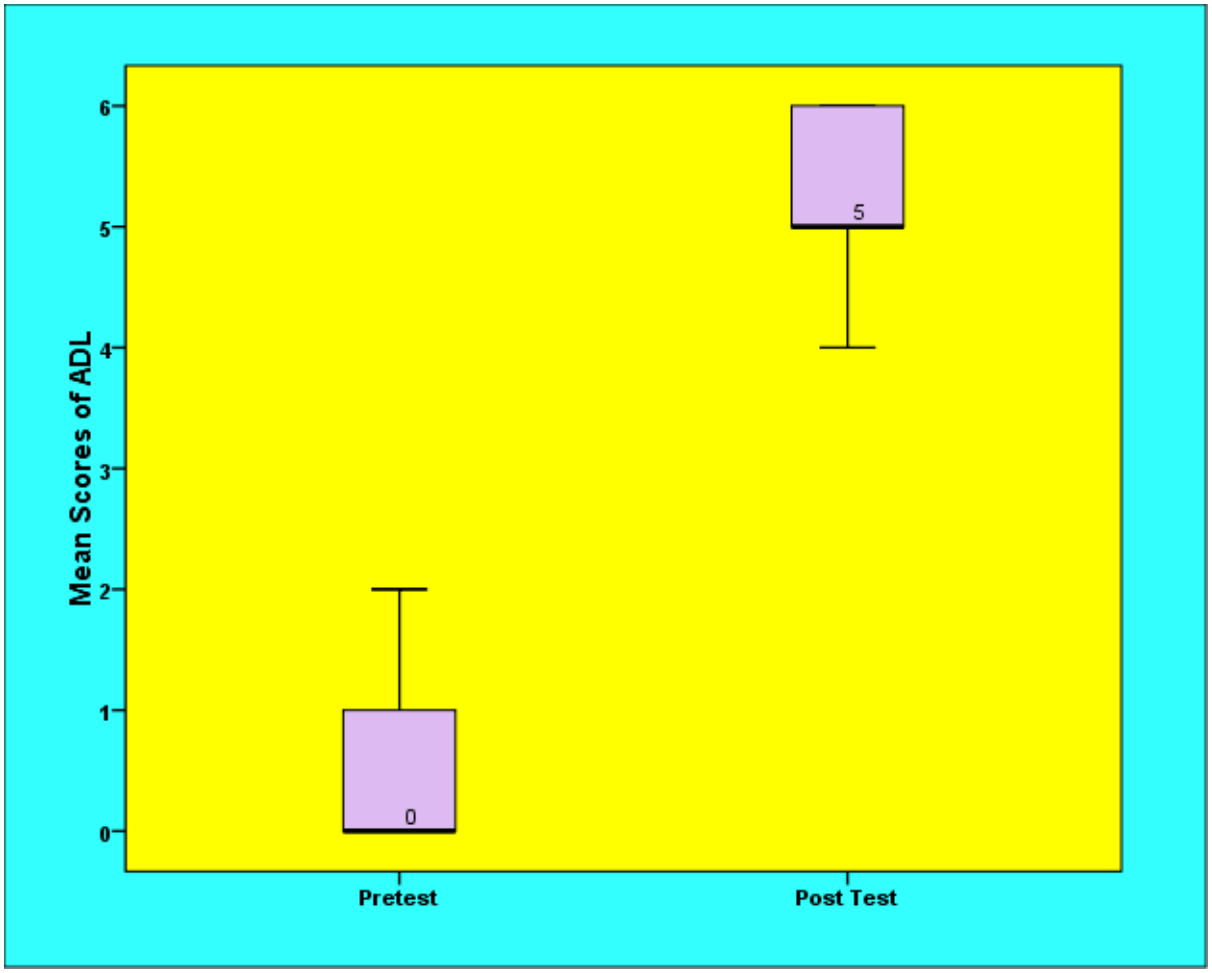


Figure 4.4: Comparison of pretest and post test level of ADL among patients undergoing hemodialysis in the experimental group

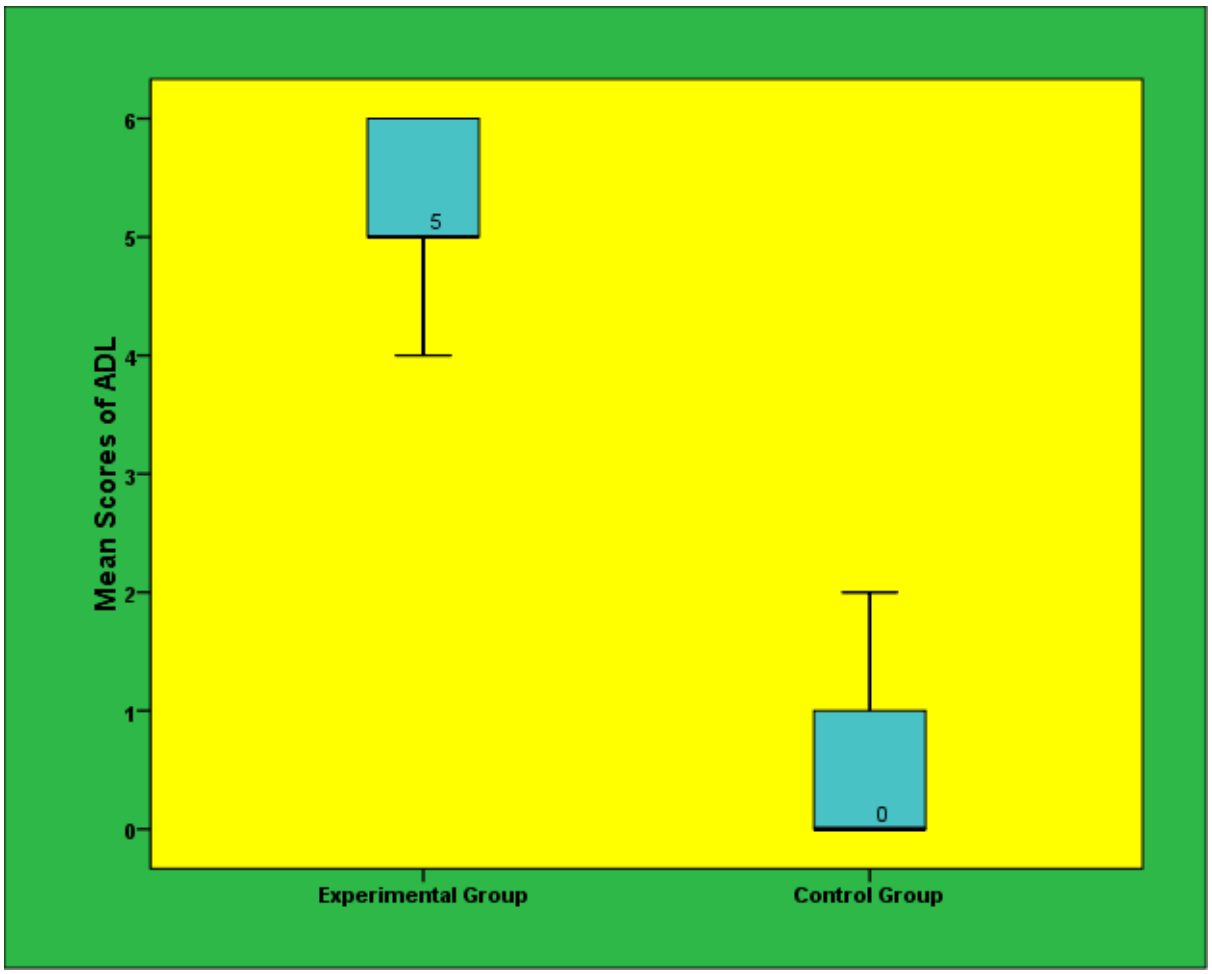


Figure 4.5: Comparison of post test level of ADL among patients undergoing hemodialysis between the experimental and control group

Table 4.7: Comparison of pretest and post test level of Insrtrumental Activities of Daily Living (IADL) among patients undergoing hemodialysis within the experimental and control group.

N = 60(30+30)

IADL	Pretest		Post Test		Mean Improvement Score & %	Paired 't' Test Value
	Mean	S.D	Mean	S.D		
Experimental Group	0.97	1.32	6.87	1.52	5.90	**t = 14.083 p = 0.000 S*** **
Control Group	1.07	1.51	1.23	1.63	0.16	t = 1.542 p = 0.134 N.S

***p<0.001, S – Significant, N.S – Not Significant**

The table 4.7 portrays that the in the experimental group pretest mean score of IADL was 0.97 ± 1.32 and the post test mean score was 6.87 ± 1.52. The mean improvement score in the experimental group was 5.90. In the control group pretest mean score of IADL was 1.07 ± 1.51 and the post test mean score was 1.23 ± 1.63. The mean improvement score in the control group was 0.16.

The calculated paired 't' value of t = 14.083 was found to be statistically highly significant at p<0.001 level. This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of IADLin the experimental group whereas in the control group the calculated paired 't' value of t = 1.542 was not found to be statistically significant.

Table 4.8: Comparison of pretest and post test level of Insrtrumental Activities of Daily Living (IADL) among patients undergoing in experimental group.

IADL	Pretest		Post Test	
	Mean	**S.D**	**Mean**	**S.D**
Experimental Group	0.97	1.32	6.87	1.52
Control Group	1.07	1.51	1.23	1.63
Mean Difference Score & %	0.10		5.63	
Unpaired 't' Value	t = 0.273 p = 0.786 N.S		**t = 13.807** **p = 0.000** **S*****	

*****p<0.001, S – Significant, N.S – Not Significant**

The table 4.8 portrays that the in the experimental group pretest mean score of IADL was 0.97 ± 1.32 and the post test mean score was 6.87 ± 1.52. The pretest mean difference score for experimental and control group was 0.10 and the post-test mean difference score for experimental and control group was 5.63.

The calculated unpaired 't' value of t = 0.273 in the pretest between the experimental and control group was not found to be statistically significant and this clearly indicates that there was no difference in the pretest level of IADL among patients undergoing hemodialysis in the experimental and control group. Whereas the calculated unpaired 't' value of t = 13.807 in the post test between the experimental and control group was found to be statistically significant at p<0.001 level and this clearly indicates that there was significant difference in the post test level of IADL among patients undergoing hemodialysis in the experimental and control group.

These findings clearly indicates that the aerobic exercises on Activities of daily living was found to be effective in improving the level of IADL among patients undergoing hemodialysis in the experimental group than the patients in the control group.

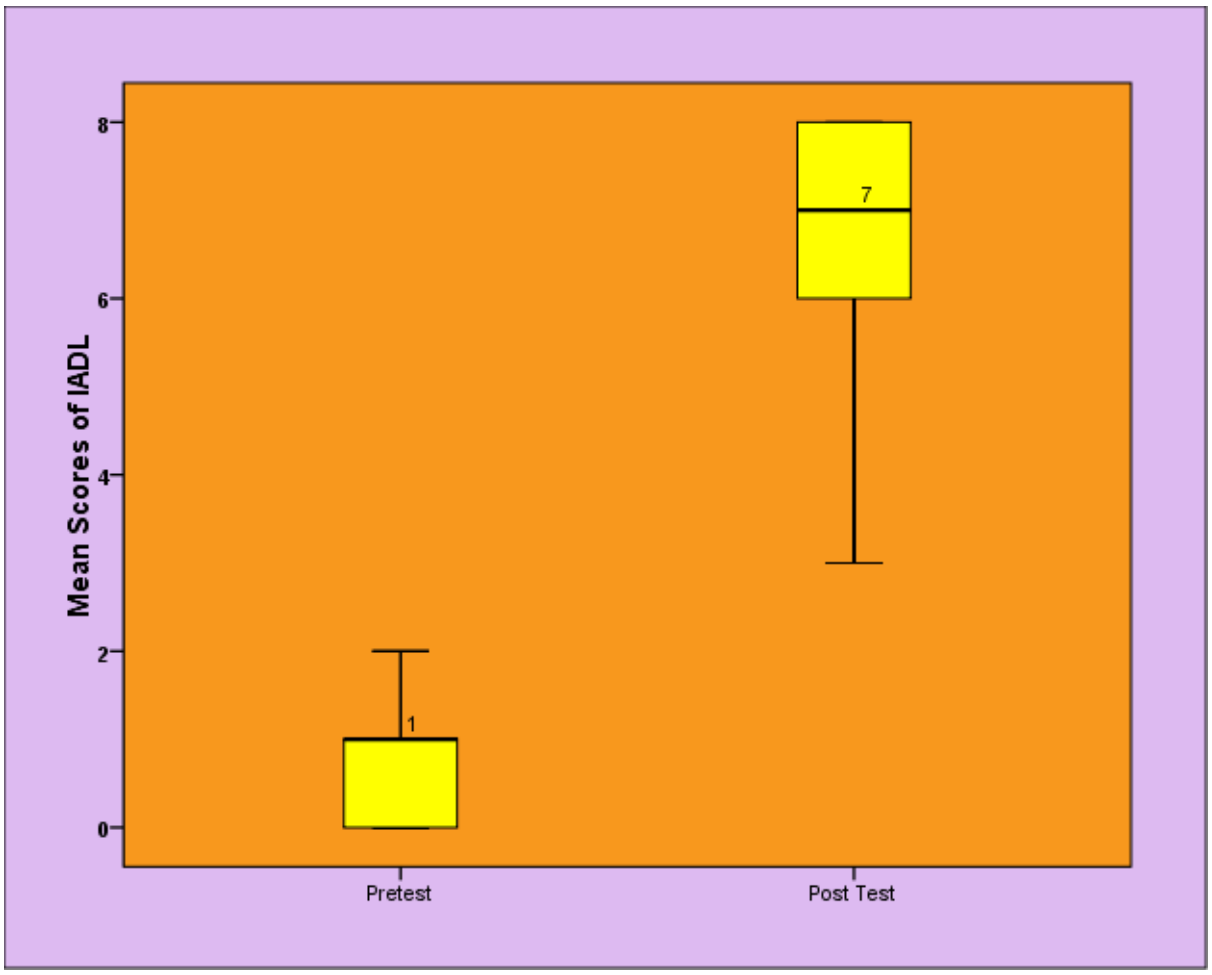


Figure 4.6: Comparison of pretest and post test level of IADL among patients undergoing hemodialysis in the experimental group

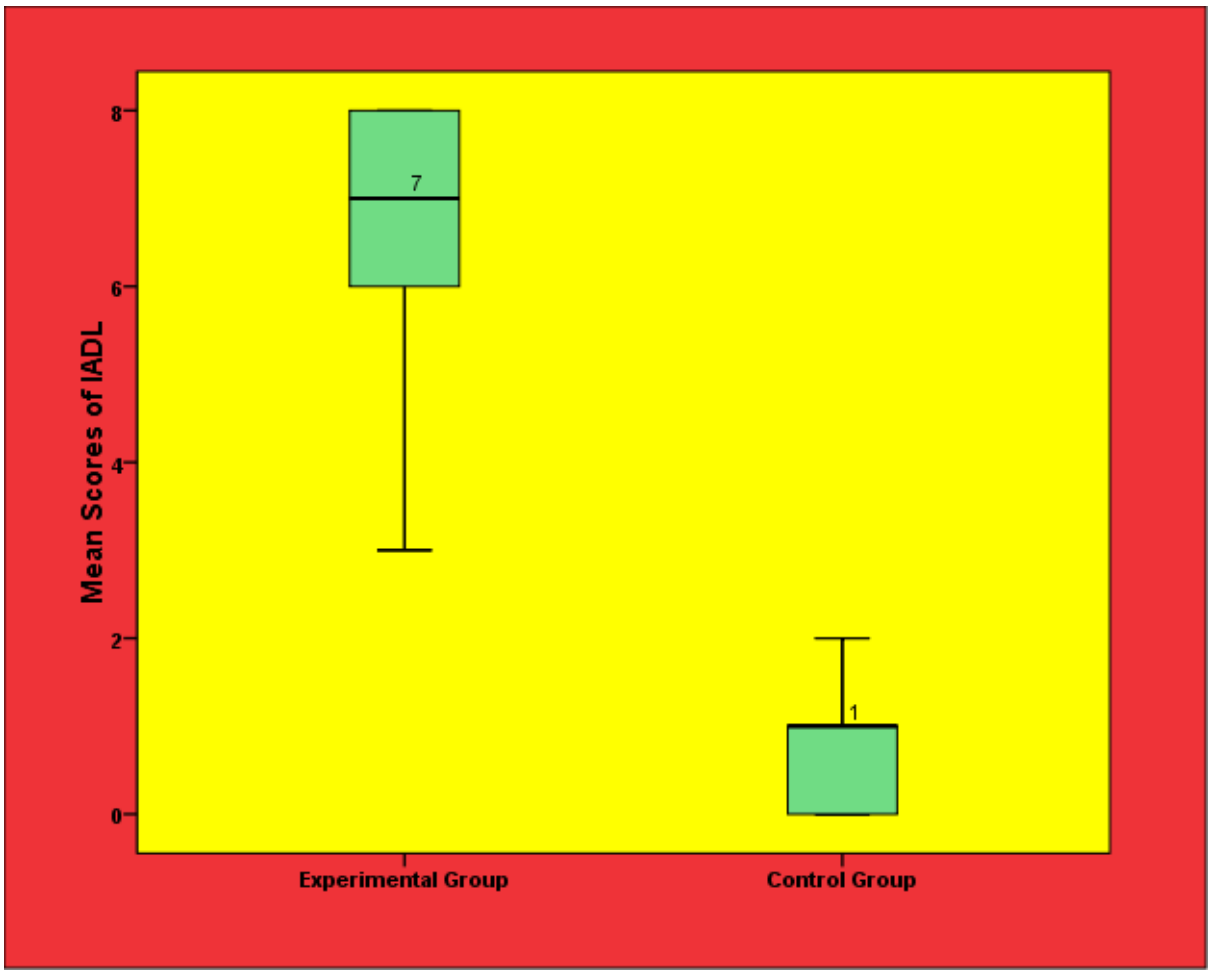


Figure 4.7: Comparison of post test level of IADL among patients undergoing hemodialysis between the experimental and control group

Table 4.9: Comparison of pretest and post test level of fatigue among patients undergoing hemodialysis within the experimental and control group.

N = 60(30+30)

Fatigue	Pretest		Post Test		Mean Improvement Score & %	Paired 't' Test Value
	Mean	S.D	Mean	S.D		
Experimental Group	58.03	3.66	15.27	9.50	42.77	**t = 21.751 p = 0.000 S*** **
Control Group	58.47	3.69	57.30	6.72	1.17	t = 1.590 p = 0.123 N.S

***p<0.001, S – Significant, N.S – Not Significant**

The table 4.9 portrays that in the experimental group pretest mean score of fatigue was 58.03 ± 3.66 and the post test mean score was 15.27 ± 9.50. The mean improvement score in the experimental group was 42.77. In the control group pretest mean score of fatigue was 58.47 ± 3.69 and the post test mean score was 57.30 ± 6.72. The mean improvement score in the experimental group was 1.17.

The calculated paired 't' value of t = 21.751 was found to be statistically highly significant at p<0.001 level. This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of fatigue in the experimental group whereas in the control group the calculated paired 't' value of t = 1.590 was not found to be statistically significant.

Table 4.10: Comparison of pretest and post test level of fatigue among patients undergoing hemodialysis between the experimental group.

Fatigue	Pretest		Post Test	
	Mean	**S.D**	**Mean**	**S.D**
Experimental Group	58.03	3.66	15.27	9.50
Control Group	58.47	3.69	57.30	6.72
Mean Difference Score & %	0.44		42.03	
Unpaired 't' Value	t = 0.456 p = 0.650 N.S		**t = 19.787** **p = 0.000** **S*****	

***p<0.001, S – Significant, N.S – Not Significant**

The table 4.10 portrays that the in the experimental group pretest mean score of fatigue was 58.03 ± 3.66 and the post test mean score was 15.27. ± 9.50. The pretest mean difference score for experimental and control group was 0.10 and the post-test mean difference score for experimental and control group was 5.63.

The calculated unpaired 't' value of t = 0.456 in the pretest between the experimental and control group was not found to be statistically significant and this clearly indicates that there was no difference in the pretest level of fatigue among patients undergoing hemodialysis in the experimental and control group. Whereas the calculated unpaired 't' value of t = 13.807 in the post test between the experimental and control group was found to be statistically significant at p<0.001 level and this clearly indicates that there was significant difference in the post test level of Fatigue among patients undergoing hemodialysis in the experimental and control group.

These findings clearly indicates that the aerobic exercises on Activities of daily living was found to be effective in improving the level of Fatigue among patients undergoing hemodialysis in the experimental group than the patients in the control group.

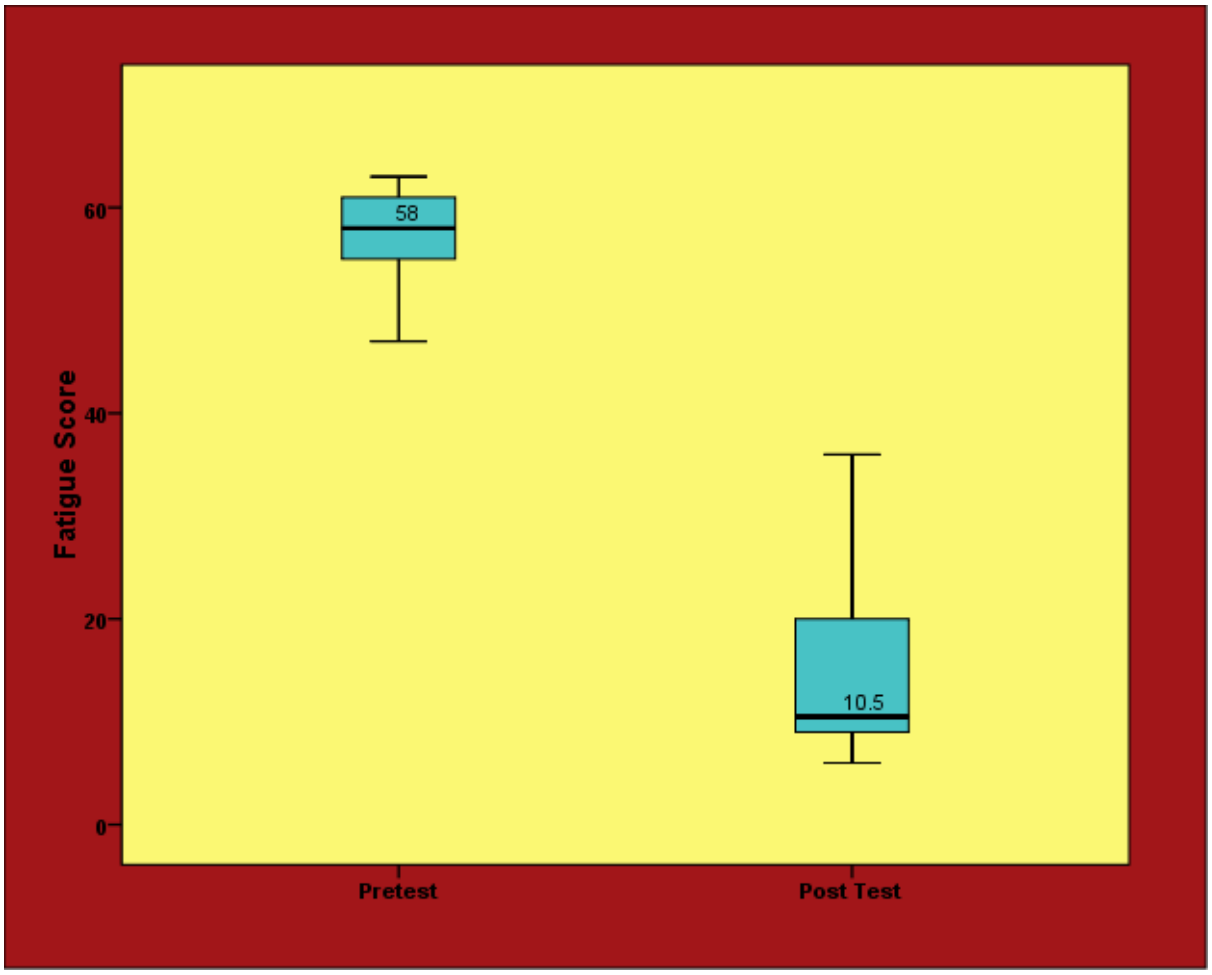


Figure 4.8: Comparison of pretest and post test level of fatigue among patients undergoing hemodialysis in the experimental group

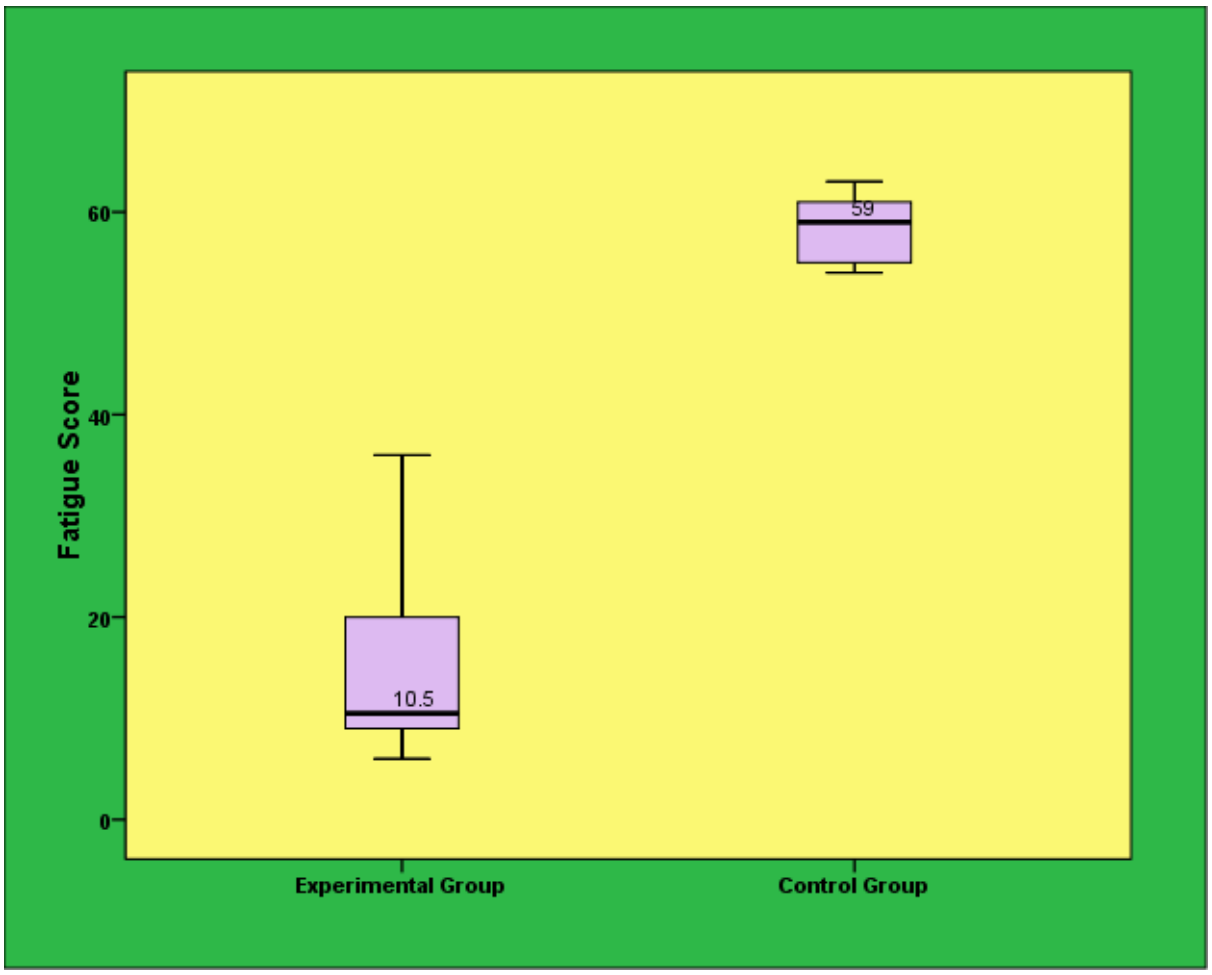


Figure 4.9: Comparison of post test level of fatigue among patients undergoing hemodialysis between the experimental and control group

SECTION D: RELATIONSHIP BETWEEN POST TEST ACTIVITIES OF DAILY LIVING, INSTRUMENTAL ACTIVITIES OF DAILY LIVING AND FATIGUE SCORES AMONG PATIENTS UNDEROGING HEMODIALYSIS IN THE EXPERIMENTAL AND CONTROL GROUP.

Table 4.11: Correlation between post test activities of daily living, IADL and fatigue scores among patients undergoing hemodialysis in the experimental and control group.

N = 60(30+30)

Group	Variables	Post Test		'r' Value
		Mean	S.D	
Experimental Group	ADL	5.37	0.61	**r = -0.501 p = 0.005 S****
	Fatigue	15.27	9.50	
	IADL	6.87	1.52	**r = -0.686 p = 0.000 S****
	Fatigue	15.27	9.50	
Control Group	ADL	0.90	1.27	r = 0.133 p = 0.483 N.S
	Fatigue	57.30	6.72	
	IADL	1.23	1.63	r = -0.148 p = 0.435 N.S
	Fatigue	57.30	6.72	

**p<0.01, S – Significant, N.S – Not Significant

Table 4.11 depicts that in the experimental group, the post mean score of ADL was 5.37±0.62 and the mean score of fatigue was 15.27±9.50. The calculeted Karl Pearson's Correlation Value of r = -0.501 shows a moderate negative correlation which was found to be statistically significant at p<0.01 level. This clearly indicates that when the post test level of fatigue decreases the activities of daily living increases.

The table also shows that in the experimental group, the post mean score of IADL was 6.87±1.52 and the mean score of fatigue was 15.27±9.50. The calculeted Karl Pearson's Correlation Value of r = -0.686 shows a substantial negative correlation which was found to be statistically significant at p<0.01 level. This clearly indicates that when the post test level of fatigue decreases the instrumental activities of daily living increases.

The table further shows that in the control group, the post mean score of ADL was 0.90±1.27 and the mean score of fatigue was 57.30±6.72. The calculeted Karl Pearson's Correlation Value of r = 0.133 shows a positive correlation which was not found to be statistically significant.

The table also shows that in the control group, the post mean score of IADL was 1.23±1.62 and the mean score of fatigue was 57.30±6.72. The calculeted Karl Pearson's Correlation Value of r = -0.148 shows a poor negative correlation which was not found to be statistically significant.

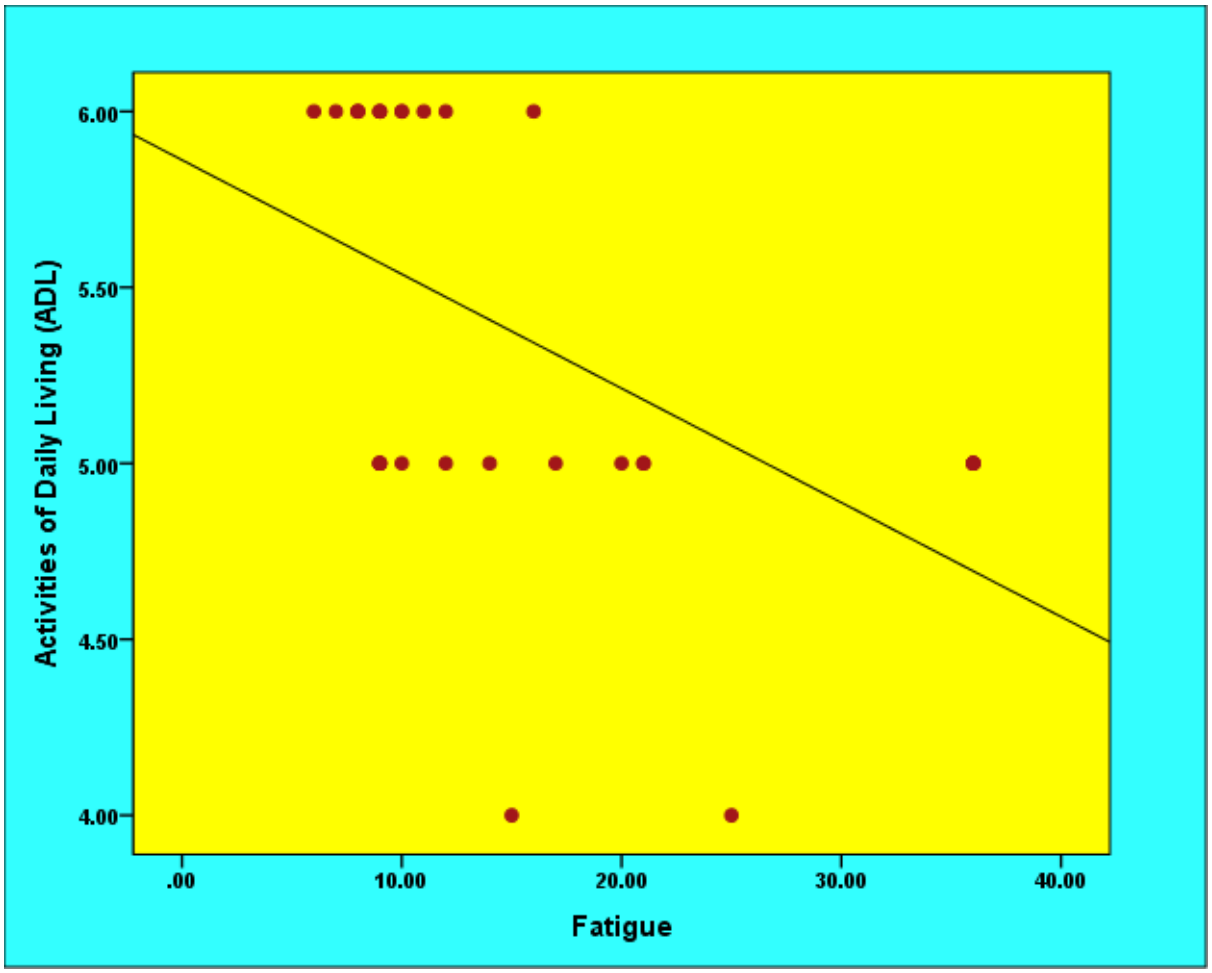


Figure 4.10: Correlation between post test activities of daily living and fatigue scores among patients undergoing hemodialysis in the experimental group

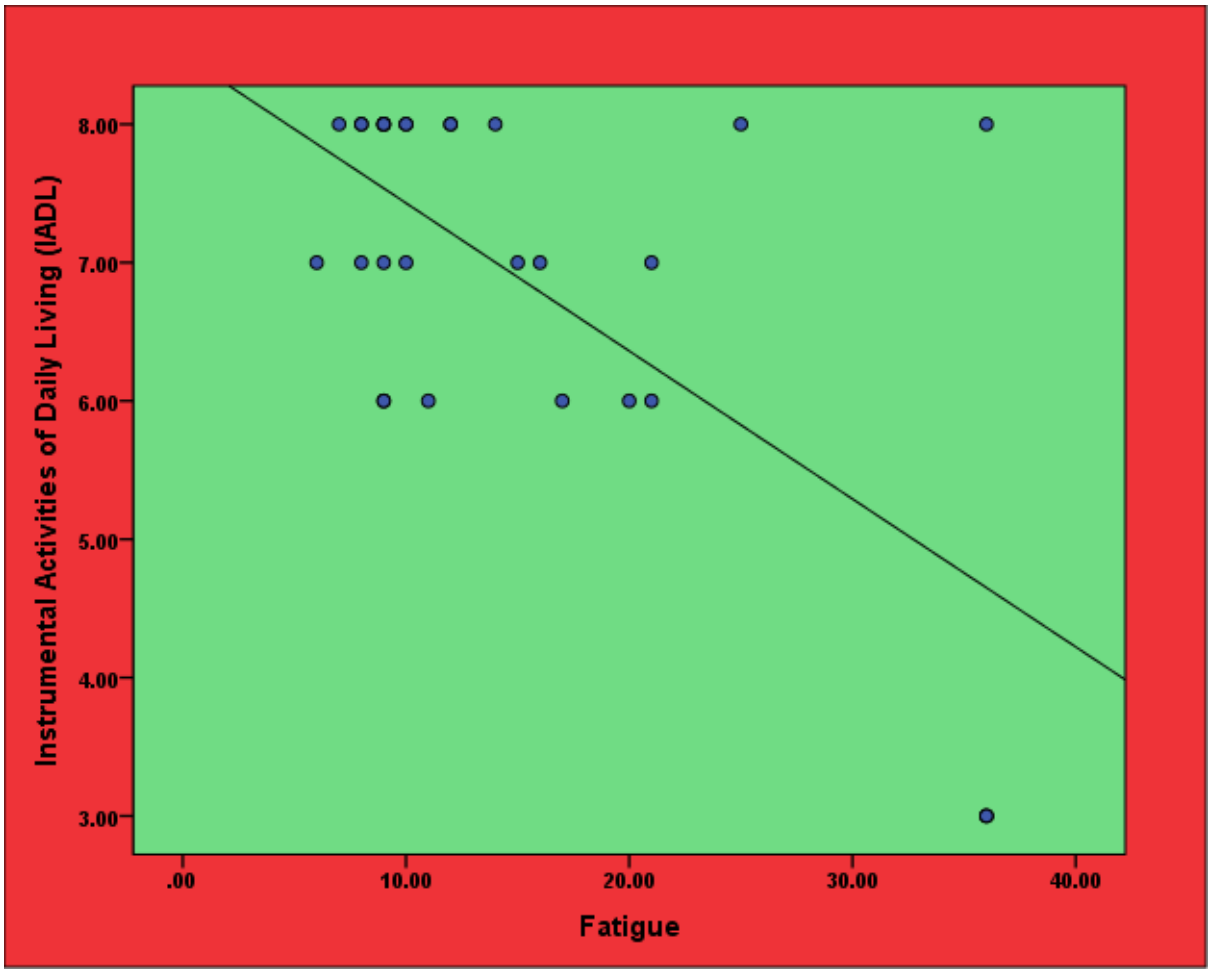


Figure 4.11: Correlation between post test instrumental activities of daily living and fatigue scores among patients undergoing hemodialysis in the experimental group

SECTION E: ASSOCIATION OF POST TEST LEVEL OF ACTIVITIES OF DAILY LIVING, INSTRUMENTAL ACTIVITIES OF DAILY LIVING AND FATIGUE AMONG PATIENTS UNDERGOING HEMODIALYSIS WITH THEIR SELECTED DEMOGRAPHIC VARIABLES IN THE EXPERIMENTAL GROUP.

Table 4.12 : Association of post test level of Activities of Daily Living (ADL) among patients undergoing hemodialyiss with their selected demographic variables in the experimental group.

N = 30

Demographic Variables	Moderately Dependent (3 – 5)		Fully Independent Functioning (6)		Chi-Square Value
	No.	%	No.	%	
Age					χ^2=0.435 d.f=2 p = 0.804 N.S
35 - 45 years	04	13.3	03	10.0	
46 - 55 years	06	20.0	06	20.0	
56 - 65 years	07	23.3	04	13.3	
Sex					χ^2=0.222 d.f=1 p = 0.638 N.S
Male	09	30.0	08	26.7	
Female	08	26.7	05	16.7	
Marital status					χ^2=3.323 d.f=2 p = 0.190 N.S
Married	15	50.0	08	26.7	
Single	02	6.7	04	13.3	
Widow/Widower	00	00	01	3.3	
Divorced	-	-	-	-	
Educational status					**χ^2=12.353 d.f=4 p = 0.015 S***
Graduate	08	26.7	04	13.3	
Higher secondary school	05	16.7	01	3.3	
High school	01	3.3	05	16.7	
Primary / secondary	00	00	03	10.0	
Illiterate	03	10.0	00	00	
Occupation					χ^2=4.434 d.f=3 p = 0.218 N.S
Sedentary worker	06	20	03	10.0	
Moderate worker	00	00	02	6.7	
Heavy worker	00	00	01	3.3	
Homemaker	11	36.7	07	23.3	
Area of residence					χ^2=2.604 d.f=2 p = 0.272 N.S
Urban	12	40.0	06	20.0	
Rural	05	16.7	06	20.0	
Semi - Urban	00	00	01	3.3	

Demographic Variables	Moderately Dependent (3 – 5)		Fully Independent Functioning (6)		Chi-Square Value
	No.	%	No.	%	
Duration of Illness (CKD)					χ^2=1.222 d.f=1 p = 0.269 N.S
<= 6 month	07	23.3	08	26.7	
1 - 5 years	10	33.3	05	16.7	
Family history of CKD					χ^2=0.709 d.f=1 p = 0.400 N.S
Yes	03	10.0	04	13.3	
No	14	46.7	09	30.0	
Duration of hemodialysis					χ^2=0.151 d.f=1 p = 0.697 N.S
<6 months	12	40.0	10	33.3	
1 - 2 years	05	16.7	03	10.0	
Frequency of hemodialysis per week					χ^2=1.330 d.f=1 p = 0.249 N.S
Weekly once	-	-	-	-	
Weekly twice	13	43.3	12	40.0	
Weekly thrice	04	13.3	01	3.3	

*p<0.05, S – Significant, N.S – Not Significant

The table 4.12 depicts that the demographic variable educational status had shown statistically significant association with post test level of ADL among patients undergoing hemodialysis at p<0.05 level and the other demographic variables had not shown statistically significant association with post test level of ADL among patients undergoing hemodialysis in the experimental group.

Table 4.13: Association of post test level of Instrumental Activities of Daily Living (IADL) among patients undergoing hemodialyiss with their selected demographic variables in the experimental group.

N = 30

Demographic Variables	Fully Dependent (≤4)		Moderately Dependent (5 – 7)		Fully Independent Functioning (8)		Chi-Square Value
	No.	%	No.	%	No.	%	
Age							χ^2=5.990 d.f=4 p = 0.200 N.S
35 - 45 years	02	6.7	03	10.0	02	6.7	
46 - 55 years	00	00	04	13.3	08	26.7	
56 - 65 years	01	3.3	06	20.0	04	13.3	
Sex							χ^2=0.166 d.f=2 p = 0.921 N.S
Male	02	6.7	07	23.3	08	26.7	
Female	01	3.3	0	20.0	06	20.0	
Marital status							χ^2=2.082 d.f=4 p = 0.721 N.S
Married	03	10.0	10	33.3	10	33.3	
Single	00	00	03	10.0	03	10.0	
Widow/Widower	00	00	00	00	01	3.3	
Divorced	-	-	-	-	-	-	
Educational status							χ^2=12.981 d.f=8 p = 0.113 N.S
Graduate	00	00	05	16.7	01	3.3	
Higher secondary school	02	6.7	02	6.7	02	6.7	
High school	00	00	05	16.7	01	3.3	
Primary / secondary	00	00	01	3.3	02	6.7	
Illiterate	01	3.3	00	00	02	6.7	
Occupation							χ^2=6.703 d.f=6 p = 0.349 N.S
Sedentary worker	00	00	00	00	03	10.0	
Moderate worker	00	00	00	00	02	6.7	
Heavy worker	00	00	00	00	01	3.3	
Homemaker	03	10.0	07	23.3	8	26.7	
Area of residence							χ^2=3.827 d.f=4 p = 0.430 N.S
Urban	02	6.7	06	20.0	10	33.3	
Rural	01	3.3	07	23.3	03	10.0	
Semi - Urban	00	00	00	0	01	3.3	
Duration of Illness (CKD)							χ^2=0.696 d.f=2 p = 0.706 N.S
<=6 month	01	3.3	06	20.0	08	26.7	
1 - 5 years	02	6.7	07	23.3	06	20.0	
Family history of CKD							χ^2=1.343 d.f=2 p = 0.511 N.S
Yes	00	00	04	13.3	03	10.0	
No	03	10.0	09	30.0	11	36.7	

Demographic Variables	Fully Dependent (≤4)		Moderately Dependent (5 – 7)		Fully Independent Functioning (8)		Chi-Square Value
	No.	**%**	**No.**	**%**	**No.**	**%**	
Duration of hemodialysis							**χ^2=8.336 d.f=2 p = 0.015 S***
<6 months	00	00	11	36.7	10	33.3	
1 - 2 years	03	10.0	02	6.7	04	13.3	
Frequency of hemodialysis per week							χ^2=1.899 d.f=2 p = 0.387 N.S
Weekly once	-	-	-	-			
Weekly twice	02	6.7	10	33.3	13	43.3	
Weekly thrice	01	3.3	03	10.0	01	3.3	

*p<0.05, S – Significant, N.S – Not Significant

The table 4.13 depicts that the demographic variable duration of hemodialysis had shown statistically significant association with post test level of IADL among patients undergoing hemodialysis at p<0.05 level and the other demographic variables had not shown statistically significant association with post test level of IADL among patients undergoing hemodialysis in the experimental group.

Table 4.14: Association of post test level of Fatigue among patients undergoing hemodialysis with their selected demographic variables in the experimental group.

N = 30

Demographic Variables	No Fatigue (<36)		Severe Fatigue (≥36)		Chi-Square Value
	No.	%	No.	%	
Age					χ^2=1.838 d.f=2 p = 0.399 N.S
35 - 45 years	05	16.7	02	6.7	
46 - 55 years	11	36.7	01	3.3	
56 - 65 years	10	33.3	01	3.3	
Sex					χ^2=0.632 d.f=1 p = 0.427 N.S
Male	14	46.7	03	10.0	
Female	12	40.0	01	3.3	
Marital status					χ^2=0.213 d.f=2 p = 0.899 N.S
Married	20	66.7	03	10.0	
Single	05	16.7	01	3.3	
Widow/Widower	01	3.3	00	00	
Divorced	-	-	-	-	
Educational status					**χ^2=12.692 d.f=4 p = 0.013 S***
Graduate	12	40.0	00	00	
Higher secondary school	04	13.3	02	6.7	
High school	06	20.0	00	00	
Primary / secondary	03	10.0	00	00	
Illiterate	01	3.3	02	6.7	
Occupation					χ^2=3.077 d.f=3 p = 0.380 N.S
Sedentary worker	09	30.0	00	00	
Moderate worker	02	6.7	00	00	
Heavy worker	01	3.3	00	00	
Homemaker	14	46.7	04	13.3	
Area of residence					χ^2=0.498 d.f=2 p = 0.779 N.S
Urban	15	50.0	03	10.0	
Rural	10	33.3	01	3.3	
Semi – Urban	01	3.3	00	00	
Duration of Illness (CKD)					χ^2=0.000 d.f=1 p = 1.000 N.S
<= 6 month	13	43.3	02	6.7	
1 - 5 years	13	43.3	02	6.7	
Family history of CKD					χ^2=1.405 d.f=1 p = 0.236 N.S
Yes	07	23.3	00	00	
No	19	63.3	04	13.3	
Duration of hemodialysis					χ^2=1.285 d.f=1 p = 0.257 N.S
<6 months	20	66.7	02	6.7	
1 - 2 years	06	20.0	02	6.7	

Demographic Variables	No Fatigue (<36)		Severe Fatigue (≥36)		Chi-Square Value
	No.	%	No.	%	
Frequency of hemodialysis per week					χ^2=0.231 d.f=1 p = 0.631 N.S
Weekly once	-	-	-	-	
Weekly twice	22	73.4	03	10.0	
Weekly thrice	04	13.3	01	3.3	

*p<0.05, S – Significant, N.S – Not Significant

The table 4.14 depicts that the demographic variable educational status had shown statistically significant association with post test level of fatigue among patients undergoing hemodialysis at p<0.05 level and the other demographic variables had not shown statistically significant association with post test level of fatigue among patients undergoing hemodialysis in the experimental group.

DISCUSSION

This chapter deals the major findings of the study and reviews them in relation to finding other studies. The main aim of the study was to assess the effectiveness of aerobic exercises on level of fatigue and ADLs among patients undergoing hemodialysis at selected hospitals, Chennai.

In this study experimental design was adopted. Sixty samples were selected by simple random sampling technique through lottery method and the sample were assessed and those who fulfilling the inclusive criteria were selected in experimental and control group. Demographic data during pretest data were collected using questionnaires. Intervention with 4 sets of aerobic exercises were demonstrated to the subjects in the experimental group, control group was followed the routine hospital care. Post test was conducted on the seventh day to assess the level of fatigue and ADLs using standardized scale. The data were organized and analyzed and the major results of the study are discussed according to the objectives.

5.1 Description of demographic variables among hemodialysis patients on frequency and percentage distribution

The finding of the study based on the objectives:

Demographic characteristics of hemodialysis patients which includes age, sex, marital status, occupation, education, area of residence, family history of CKD, duration of dialysis, frequency of dialysis, duration of illness.

MAJOR FINDINGS OF THE STUDY AND DISCUSSION

Majority of the samples were in the age group of 46 – 55 years(40%), male were more affected than females 17(56.67%), in that 23(76.67%) were married, 12(40%) were graduates, 16(60%) were homemakers, 18(60%) were from urban area, 15(50%) were suffering from illness for ±6 month and 1 – 5 years respectively, 23(76.67%) had no family history of CKD, 21(70%) were undergoing hemodialysis for <6 months and 25(83.33%) were undergoing hemodialysis twice in a week.

The analysis of ADLs in the experimental group, 29(96.67%) were fully dependent and only one (3.33%) was moderately dependent in the pretest, whereas in the post test, 17(56.67%) were moderately dependent and 13(43.33%) were fully independent. In the

control group, in the pretest 27(93.33%) were fully dependent and only 3(6.67%) were moderately dependent whereas in the post test, 26(86.67%) were fully dependent and only 4(13.33%) were moderately dependent.

The analysis of FSS in the experimental group, almost all 30(100%) had fatigue in the pretest whereas in the post test, 26(86.67%) had no fatigue and only 4(13.33%) had fatigue. In the control group, in the pretest almost all 30(100%) had fatigue and in the post test, 28(93.33%) had fatigue and only 2(6.67%) had no fatigue.

5.2 The first objective of the study was to determine the effectiveness of aerobic exercises among hemodialysis patients in experimental group and control group.

The analysis showed that the in the experimental group pretest mean score of ADL was 0.57 ± 1.04 and the post test mean score was 5.37 ± 0.61. The mean improvement score was in the experimental group was 4.80. In the control group pretest mean score of ADL was 0.80 ± 1.24 and the post test mean score was 0.90 ± 0.61. The mean improvement score in control group was 0.10.

The calculated paired ‘t’ value of t = 22.165 was found to be statistically highly significant at $p<0.001$ level. This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of ADL in the experimental group whereas in the control group the calculated paired ‘t’ value of t = 1.795 was not found to be statistically significant.

The analysis showed that the in the experimental group pretest mean score of IADL was 0.97 ± 1.32 and the post test mean score was 6.87 ± 1.52. The mean improvement score in the experimental group was 5.90. In the control group pretest mean score of IADL was 1.07 ± 1.51 and the post test mean score was 1.23 ± 1.63. The mean improvement score in the control group was 0.16.

The calculated paired ‘t’ value of t = 14.083 was found to be statistically highly significant at $p<0.001$ level. This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of IADL in the experimental group whereas in the control group the calculated paired ‘t’ value of t = 1.542 was not found to be statistically significant.

The analysis showed that in the experimental group pretest mean score of fatigue was 58.03 ± 3.66 and the post test mean score was 15.27 ± 9.50. The mean improvement score in the experimental group was 42.77. In the control group pretest mean score of fatigue was 58.47 ± 3.69 and the post test mean score was 57.30 ± 6.72. The mean improvement score in the experimental group was 1.17.

The calculated paired 't' value of t = 21.751 was found to be statistically highly significant at $p<0.001$ level. This clearly indicates that aerobic exercises administered to patients undergoing hemodialysis was found to be effective and there was significant improvement in their post test level of fatigue in the experimental group whereas in the control group the calculated paired 't' value of t = 1.590 was not found to be statistically significant.

Hence, the research hypothesis H_1 - There is a significant difference within pre-test and post-test level of fatigue and ADLs among experimental and control group was accepted.

The calculated unpaired 't' value of t = 0.789 in the pretest between the experimental and control group was not found to be statistically significant and this clearly indicates that there was no difference in the pretest level of ADL among patients undergoing hemodialysis in the experimental and control group. Whereas the calculated unpaired 't' value of t = 17.349 in the post test between the experimental and control group was found to be statistically significant at $p<0.001$ level and this clearly indicates that there was significant difference in the post test level of ADL among patients undergoing hemodialysis in the experimental and control group.

The calculated unpaired 't' value of t = 0.273 in the pretest between the experimental and control group was not found to be statistically significant and this clearly indicates that there was no difference in the pretest level of IADL among patients undergoing hemodialysis in the experimental and control group. Whereas the calculated unpaired 't' value of t = 13.807 in the post test between the experimental and control group was found to be statistically significant at $p<0.001$ level and this clearly indicates that there was significant difference in the post test level of IADL among patients undergoing hemodialysis in the experimental and control group.

The calculated unpaired 't' value of t = 0.456 in the pretest between the experimental and control group was not found to be statistically significant and this clearly indicates that there was no difference in the pretest level of fatigue among patients undergoing hemodialysis in the experimental and control group. Whereas the calculated unpaired 't' value of t = 13.807 in the post test between the experimental and control group was found to be statistically significant at $p<0.001$ level and this clearly indicates that there was significant difference in the post test level of Fatigue among patients undergoing hemodialysis in the experimental and control group.

These findings clearly indicates that the aerobic exercises on Activities of daily living was found to be effective in improving the level of Fatigue among patients undergoing hemodialysis in the experimental group than the patients in the control group.

Hence, the research hypothesis H_2 – "There is a significant difference between pre-test and post-test level of fatigue and ADLs among experimental and control group" was accepted.

5.3 The second objective of the study was to evaluate the correlation between the level of fatigue and ADLs among hemodialysis patient in experimental group

The analysis showed that in the experimental group, the post mean score of ADL was 5.37 ± 0.62 and the mean score of fatigue was 15.27 ± 9.50. The calculated Karl Pearson's Correlation Value of r = -0.501 shows a moderate negative correlation which was found to be statistically significant at $p<0.01$ level. This clearly indicates that when the post test level of fatigue decreases the activities of daily living increases.

The analysis also shows that in the experimental group, the post mean score of IADL was 6.87 ± 1.52 and the mean score of fatigue was 15.27 ± 9.50. The calculated Karl Pearson's Correlation Value of r = -0.686 shows a substantial negative correlation which was found to be statistically significant at $p<0.01$ level. This clearly indicates that when the post test level of fatigue decreases the instrumental activities of daily living increases.

The analysis further shows that in the control group, the post mean score of ADL was 0.90±1.27 and the mean score of fatigue was 57.30±6.72. The calculated Karl Pearson's

Correlation Value of r = 0.133 shows a positive correlation which was not found to be statistically significant.

The analysis also shows that in the control group, the post mean score of IADL was 1.23 ± 1.62 and the mean score of fatigue was 57.30 ± 6.72. The calculated Karl Pearson's Correlation Value of r = -0.148 shows a poor negative correlation which was not found to be statistically significant.

Hence, the research hypothesis H_3, "There is a significant correlation between the level of fatigue and ADLs among hemodialysis patient in experimental group" was accepted.

5.4 The third objective of the study was to associate the level of fatigue and ADLs with the selected demographic variables in experimental group.

The analysis shows that the demographic variable educational status had shown statistically significant association with post test level of ADL among patients undergoing hemodialysis at $p<0.05$ level and the other demographic variables had not shown statistically significant association with post test level of ADL among patients undergoing hemodialysis in the experimental group.

The analysis shows that the demographic variable duration of hemodialysis had shown statistically significant association with post test level of IADL among patients undergoing hemodialysis at $p<0.05$ level and the other demographic variables had not shown statistically significant association with post test level of IADL among patients undergoing hemodialysis in the experimental group.

The analysis shows that the demographic variable educational status had shown statistically significant association with post test level of fatigue among patients undergoing hemodialysis at $p<0.05$ level and the other demographic variables had not shown statistically significant association with post test level of fatigue among patients undergoing hemodialysis in the experimental group.

The chi-square test was used to find out the association of the mean difference level on fatigue and ADLs on aerobic exercise and the selected variables. The finding reveals that educational status had shows statistically significant association with level of fatigue and

ADLs on aerobic exercises and the other demographic variables are not shown significant association with the level of fatigue and ADLs regarding aerobic exercises among hemodialysis patients.

Hence, the research hypothesis H_4, "There is a significant association among the level of fatigue and ADLs with the selected demographic variables in experimental group" was accepted.

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

This chapter summarizes the findings, understanding and interpretation of result and recommendation that incorporate the implications such as nursing practice, nursing education, nursing administration, and nursing research. It also gives meaning to the results obtained in the study.

6.1 SUMMARY

A person diagnosed with CKD may undergo medical, surgical, or hemodialysis as a management of CKD among which hemodialysis is the commonest treatment modality. Many complications arise as side effects of hemodialysis, among these fatigue and ADLs is a major non-hematological complication of the hemodialysis. Preventing a complication beforehand is much easier and less costly than treating it. With this connection, aerobic exercise can be very easily trained and can do in any places in preventing or decreasing the severity of fatigue and increase the ADLs developing due to Hemodialysis.

Aerobic exercises are the easiest way, for the people undergoing hemodialysis. The scientific evidence supporting aerobic exercises as the best treatment to prevent fatigue and ADLs and recommended for further research with other exercises the investigator had an intense curiosity to assess the effectiveness of aerobic exercises over level of fatigue and ADLs among the patients receiving hemodialysis thereby undertaking this study.

6.1.1 STATEMENT OF THE PROBLEM

A study to assess the effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospitals, Chennai.

6.1.2 THE OBJECTIVES OF THE STUDY

1. To compare the pre test and post test level effectiveness among hemodialysis patients in Experimental and Control group.

2. To correlate between the level of fatigue and ADLs among hemodialysis patient in experimental group and control group

3. To associate the level of fatigue and ADLs with the selected demographic variables in experimental group and control group.

6.1.3Assumption

1. Patient undergoing hemodialysis may have some level of fatigue and alteration in ADL.
2. "Aerobic exercises" may be effective in reducing the level of fatigue and ADLs among hemodialysis patients.

6.1.4 Hypotheses

H_1- There is a significant difference within pre-test and posttest level of fatigue and ADLs among experimental and control group.

H_2- There is a significant difference between pre-test and posttest level of fatigue and ADLs among experimental.

H_3 . There is a significant correlation between the level of fatigue and ADLs among Hemodialysis patient in experimental group

H_4 . There is a significant association among the level of fatigue and ADLs with the selected demographic variables in experimental group.

The Conceptual Framework adapted for this study was **Widenbach's** Helping art of clinical Nursing Theory and the review of literature searched on hemodialysis, aerobic exercises, fatigue and activities of daily living among hemodialysis patients. Experimental approach design was used in this study , with 60 samples (30 experimental and 30 control group). Simple random sampling technique was used and the study was conducted at Nephroplus care centre and Deepam hospital.

The Tool consists of structured questionnaire to elicit the demographic variables and Fatigue Severity Scale (FSS), Lawton – Brody Instrumental Activities of Daily Living (IADL) Scale, Katz Index of Independence In Activities of Daily Living (ADL) Scale was used to assess the level of fatigue and ADLs. Content validity was obtained from expert's opinion and suggestions of experts were incorporated. The tool was assessed for reliability using test retest method r = 0.88 considered as a highly reliable for proceeding the main study.

A Pilot Study was conducted to assess the feasibility, practicability of the study and six patients were selected who fulfilled the inclusive criteria. The intervention had an appreciable decrease in the level of fatigue and increased in the ADLs and IADL among patients undergoing hemodialysis.

A total number of 60 hemodialysis patients who met the inclusive criteria were selected by simple randomized sampling technique through lottery method. The subjects in Nephroplus care centre were taken as experimental group and the subjects in Deepam hospital were taken as control group.

After getting the consent, data for demographic variables and pretest level of fatigue, ADLs, IADLs were collected. Aerobic exercises were demonstrated to the patients in the experimental group. Routine hospital measures were followed for the patients in control group. Posttest level of fatigue, ADLs and IADLs was assessed by using standardized scales on 7^{th} day and data was analysed using descriptive and inferential statistics.

6.1.5 The major finding of the study reveals that

The study reveals that the comparison of Pre-test level of ADLs in experimental group the on aerobic exercises among hemodialysis patient's pre test mean score was 0.57 with S.D 1.04 and the post-test level of ADLs mean score was 5.37 with S.D 0.61. The calculated paired't' test value 22.165 was found to be statistically significant at $p< 0.001$ level.

The study reveals that the comparison of Pre-test level of IADLs in experimental group the on aerobic exercises among hemodialysis patient's pre test mean score was 0.97with S.D 1.32and the post-test level of IADLs mean score was 6.87with S.D 1.52. The calculated paired 't' test value 14.083 was found to be statistically significant at $p<0.001$ level.

The study reveals that the comparison of Pre-test level of Fatigue in experimental group the on aerobic exercises among hemodialysis patient's pre test mean score was 58.03with S.D 3.66and the post-test level of fatigue mean score was 15.27 with S.D 9.50. The calculated paired 't' test value21.75 was found to be statistically significant at $p<0.001$ level.

6.2 CONCLUSION

The present study assessed the effectiveness of Fatigue and ADLs is one of the most common side effects of Hemodialysis, it adversely affects the course of hemodialysis and the patient's quality of life as well. This study highlighted the effectiveness of aerobic exercises in reducing fatigue and ADLs among hemodialysis patients, and thereby improves the quality of life. As aerobic exercises can be done easily, patient can be effectively of these exercises. Nurses can promote the use of these aerobic exercises, thus promoting the patients quality of the life and prognosis of the disease.

Study finding showed that aerobic exercise is a more effective in reducing the level of fatigue and increases the ADLs among patient undergoing hemodialysis is a non – pharmacological, cost effective and simple approach in preventing fatigue and ADLs.

6.3 IMPLICATIONS

This section of the research report that focus on nursing implications, which includes specific suggestions for nursing practices, nursing education, nursing administration, and nursing research.

6.3.1 NURSING PRACTICES

- Aerobic exercises is a nursing intervention that is well tolerated by patients and easily implemented by nurses.
- Nurses should get the co-operation from the physiotherapy team and resource in treating the patients.
- Teach the staff nurse about the effectiveness of aerobic exercises to reduce the level of fatigue and to increase the ADLs among hemodialysis patients.
- Nurses can give health education to the patient on the level of fatigue and ADLs and how it can be prevented by aerobic exercises.

6.3.2 NURSING EDUCATION

- A continuing nursing education program can be arranged on aerobic exercises and hemodialysis including fatigue and ADLs.
- In-service education can be given to staff nurses and faculty members regarding aerobic exercises, and hemodialysis induced fatigue and ADLs.

- Nurse educator should encourage the student for effective utilization of research evidence based practice related to aerobic exercises on hemodialysis patient.

6.3.3 NURSING ADMINISTRATION

- The Nurse administrator should create awareness on the importance and benefits of aerobic exercises
- The Nurse administrator can arrange for various sessions on Aerobic exercises since it is one of the cost effective intervention for fatigue and ADLs which develops due to hemodialysis.
- Nurse administrator can instruct and encourage their subordinates to utilize this as a nursing intervention in their clinical setting.
- Nurse administrator can arrange and conduct workshops, conferences and seminars on Side-effects of hemodialysis and its management by aerobic exercises.

6.3.4 NURSING RESEARCH

- Disseminate the findings of the study through conferences, seminars and by publishing in journals and websites.
- Promote more researchers in developing alternative activities in reducing fatigue among hemodialysis patients.
- Findings of this study can be taken as a baseline to conduct further researches. Especially, nurses should be encouraged to conduct the study in clinical settings.
- Encourage the non pharmacological intervention; nurse researchers can promote many studies on the topic.

6.4 RECOMMENDATIONS

- The study can be done with large size so that the result can be generalized.
- Comparison of aerobic exercises with other type management can be conducted.
- Studies can be conducted to assess the awareness and practice in aerobic exercises on hemodialysis patients.
- Studies to assess the quality of life improved by aerobic exercises.
- Studies can be done to assess the effect of aerobic exercises on different stages of hemodialysis.

- A similar study can be done by changing the exercises and checking the stages of hemodialysis.

6.5 PLAN FOR RESEARCH DISSEMINATION

The research findings will be disseminated through various national and international conference and journals.

6.6 LIMITATIONS

- The investigator found difficult in getting adequate literature related to fatigue and ADLs among hemodialysis patients.
- The investigator faced difficulty in demonstrating the exercises for each patient in ward.
- Due to time constrain, the investigator was unable to take large samples for the study.

REFERENCES

BOOKS:

1. Barbara Kozier.,(2000). *Fundamentals of nursing Concepts, Process and Practice:* Benjamine Cummings Publishing Company.
2. Basvanthappa. B., (2007). *Nursing Research*:New Delhi: Jaypee
3. Basavanthappa B.T., (2003), *Medical Surgical Nursing*: Jaypee brother's medical publications, New Delhi.
4. Black M. Joyce, (2005), *Medical Surgical Nursing*: Saunders Publishers.
5. Brunner and Suddarth, (2010), *Text book of Medical Surgical and Nursing*: Lippincott publishers, Philadelphia.New Delhi.
6. Denise F. Polit,(2013), *Essential of Nursing Research – Appraising Evidence for Nursing Practice*: Lippincott publishers, New Delhi
7. .Harkness Dincher, (1999), Medical *Surgical Nursing: Total patient care*: Mosby Publications, Philadalphia.
8. Lewis, Heitkemper and Dirksen, (2010), *Medical Surgical Nursing*: Mosby Publications, Missouri. New Delhi.
9. Mahajan B.K. (2004), *Methods in Bio- Statistics- for Medical Students and research workers*: Jaypee Brothers Medical Publications Pvt.,Ltd., and New Delhi.
10. Marilyn E. Parker (2006), *Nursing theories and Nursing Practice*: F.A. Davis Company, New Delhi.
11. Nancy Burns and Susan K. Groove (2005), *The practice of Nursing Research:* Elseiver saunders, New Delhi.
12. Polit.F.D,Beck.C.T. (2008), *Nursing research generating and assessing evidence for nursing practices*: Lippincott Williams & Wilkins, Philadelphia.
13. Suresh K Sharma (2014), *Nursing Research and Statistics:* Reed Elsevier India Private Limited, New Delhi.
14. Smeltzer C. Suzanne, Bare G. Brenda, (2008), *Textbook of Medical Surgical Nursing*: Lippincott publishers, New Delhi.

JOURNALS:

1. Amini,et.al., (2016) Effect of progressive muscle relaxation and aerobic exercise on anxiety, sleep quality, and fatigue in patients with chronic renal failure undergoing Hemodialysis, *International Journal of Pharmaceutical and Clinical Research*, 8(12), 1634-1639.
2. Anding K,et.al.,(2015) A structured exercise programme during haemodialysis for patients with chronic kidney disease: clinical benefit and long-term adherence, *BMJ journals, 5,8.*
3. Aoike.D.K,et.al.,(2015) Impact of home-based aerobic exercise on the physical capacity of overweight patients with chronic kidney disease**:** *International Urology and Nephrology***,** 47(2), 359–367.
4. Bossola.M.,et.al.,(2018) Effects of Exercise Training on Restless Legs Syndrome, Depression, Sleep Quality, and Fatigue Among Hemodialysis Patients: *A Systematic Review and Meta-analysis, Journal of Pain and Symptom Management*, 55, 1184-1195.
5. Fram.D,et.al.,(2015)Risk factors for bloodstream infection in patients at a Brazilian hemodialysis center: a case–control study: *BMC Infectious Diseases,*158.
6. Geovana.M.A,et al., (2017)Benefits of physical exercises in patients with chronic kidney disease and haemodialysis: A Mini Reviwe: *Urology & Nephrology Open Access Journal,* 5(4):00177.
7. Gerasimoula.K,et.al.,(2015) Quality of life in hemodialysis patients: *Materia Socio-medica* 27(5), 305-309.
8. Johansen.L,et.al.,(2015) Characterization of Physical Activity and Sitting Time Among Patients on Hemodialysis Using a New Physical Activity Instrument: *journal of renal nutrition,* 2 (1), 25-30.
9. Larun.L,et.al.,(2016) Exercise therapy for chronic fatigue syndrome: *Cochrane Database Syst Rev*. 24;(6).
10. Maniam.R,et.al.,(2014)Preliminary study of an exercise programme for reducing fatigue and improving sleep among long-term haemodialysis patients, *Singapore Medical Journal*, 55(9), 476–482.

11. Matsufuji.S,et.al.,(2015)Effect of Chair Stand Exercise on Activity of Daily Living: A Randomized Controlled Trial in Hemodialysis Patients: *Journal of Renal Nutrition*,25(1), 17-24.

12. Mohesin.R.,et.al.,(2013),The Effect of Intradialytic Aerobic Exercise on Dialysis Efficacy in Hemodialysis Patients: A Randomized Controlled Trial: *Oman medical journal*, 28(5), 345-349.

13. Moniek W.M,et.al.,(2015) Trends in dialysis modality choice and related patient survival in the ERA-EDTA Registry over a 20-year period : *Nephrology Dialysis Transplantation*, 31(1), 120-128.

14. Morishta.S,et.al.,(2017) Physical function was related to mortality in patients with chronic kidney disease and dialysis: *Hemodialysis international journal*,21(4), 483-489.

15. Reddenna.L,et.al.,(2014) A Comprehensive Description ; Department of Pharm-D, Rajiv Gandhi Institute of Medical Sciences: *International Journal of Pharmaceutical Research & Allied Sciences 1 Dialysis Treatment,* 3(1),1-13.

16. Sheng K,et.al.,(2014), Intradialytic exercise in hemodialysis patients: a systematic review and meta-analysis: *American journal of nephrology,* 40(5):478-90.

17. Si-Yuan Wang,et.al., (2016) Factors related to fatigue in Chinese patients with endstage renal disease receiving maintenance hemodialysis: a multi-center cross-sectional study: *Journal Renal Failure*, 38:3, 442-450.

18. Taosusan.X,et al.,(2015)A nurse-led case management program on home exercise training for hemodialysis patients: A randomized controlled trial: *International journal of nursing studies*, 52(6).

19. Zuo M,et.al.,(2018), Relationship between fatigue symptoms and subjective and objective indicators in hemodialysis patients: *International urology and nephrology,*50(7):1329-1339.

20. Zyga.s,et.al., (2015)Assessment of Fatigue in End Stage Renal Disease Patients Undergoing Hemodialysis: Prevalence and Associated Factors, *Med Arch*, 69(6), 376–380.

WEBSITES:

1. Fatigue in Hemodialysis Patients: A Review of Current Knowledge. https://www.researchgate.net/publication/228087255_Fatigue_in_Hemodialysis_Patients_A_Review_of_Current_Knowledge [accessed Jun 27 2018].
2. National institute of diabetic and digestive and kidney disease 2016 https://www.niddk.nih.gov/health-information/health-statistics/kidney-disease
3. Relationship between fatigue symptoms and subjective and objective indicators in hemodialysis patients. https://www.ncbi.nlm.nih.gov/pubmed/29728995
4. Kangh.SH The Clinical Significance of Physical Activity in Maintenance Dialysis Patients. https://www.ncbi.nlm.nih.gov/pubmed/29017151,

   Epub 2017 Sep 18.
5. International Urology and Nephrology
   https://link.springer.com/article/10.1007/s11255-014-0894-8
6. Nephrology Dialysis Transplantation https://doi.org/10.1093/ndt/gfv295

VENKATESWARA NURSING COLLEGE

(A unit of VELS Group, Pallavaram)

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Institutional Ethical Committee **03.07.2017**

Certificate of Approval

To

Ms. R. Latha Sankari,
M.Sc (N)- I Year,
Venkateswara Nursing College,
Thalambur, Chennai- 600130.

Dear Ms. R. Latha Sankari,

The Institutional Ethical Committee of Venkateswara Nursing College reviewed and discussed your application for the approval of the proposal entitled **" Effectiveness of aerobic exercise on fatigue and Activities of Daily Living (ADLs) among hemodialysis patient at selected hospital, Chennai."**

The following members of the Ethical committee were present in the meeting held on 03.07.2017 conducted at Venkateswara Nursing College, Chennai- 600130.

1. Dr. D. Parthasarathy, Special Officer – Vels University – Chair Person
2. Dr. Ciby Jose, Principal, Venkateswara Nursing College- Executive Member Secretary
3. Mr. C. Saravanan, Advocate, Legal Expert – Member
4. Dr.Irin Praveen, Vice – Principal, Venkateswara Nursing College – Member
5. Mrs. Prathiba Sivakumar, HOD in Medical Surgical Nursing – Member
6. Mrs. V. Punithavathi.I, HOD in Child Health Nursing – Member
7. Mrs.Sumathi.C, HOD in Obstetric & Gynaecological Nursing – Member
8. Prof. W. Vimala, HOD in Mental Health Nursing – Member
9. Mrs. J. Lakshmi, HOD in Community Health Nursing – Member
10. Mr. D. Sathish, Social Science Representative – Member
11. Dr. Bala Subramanian, Statistician- Member

We approve the proposal to be conducted in its presented form

The Institutional Ethical Committee expects to be informed about the progress of the study, any changes in the protocol and submit a copy of the final report.

Executive Member Secretary, Ethical committee

PRINCIPAL
VENKATESWARA NURSING COLLEGE
THALAMBUR
CHENNAI-600 130

From

17.01.2018

Ms. Latha Sankari.R,
M.Sc (N) II Year,
Venkateswara Nursing College,
Thalambur, Chennai–600 130.

To

The Centre Manager,
Nephroplus,
Deepam Pallavaram Hospital,
107A, Great Southern Trunk Road,
Santhi Nagar, Chromepet -600 044.

Respected Sir/ Madam,

Sub: Permission for conducting research study in your esteemed institution - 5 Weeks - req - reg :-

I Ms. Latha Sankari.R, M.Sc Nursing II year student of Venkateswara Nursing College have to do a dissertation work for a period of 5 weeks, to be submitted to The Tamil Nadu Dr.MGR Medical University, Chennai as a partial fulfillment for the award of Master of Science in Nursing.

The topic of my study is "A study to assess the effectiveness of aerobic exercise on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai." In this regard I request you to kindly permit me to use your esteemed institution to do my study. Kindly do the needful at t he earliest.

Thanking you,

Yours faithfully,

R. Lathasankari

(Ms. Latha Sankari.R)

Forwarded

17/1/18

HOD Medical Surgical Nursing
Venkateswara Nursing College
Thalambur, Chennai-600 130

NEPHROCARE HEALTH SERVICES PVT LTD * PLV *

VENKATESWARA NURSING COLLEGE

(A unit of VELS Group, Pallavaram)

Approved by Indian Nursing Council, (Cert. No. 18-29/3458-INC) and Tamil Nadu Nurses & Midwives Council
Affiliated to The Tamil Nadu Dr. M.G.R. Medical University
Thalambur, Off Old Mahabalipuram Road, Near Navalur, Chennai - 600 130
Phone : (91-44) 3253 7098 / 2743 5060 Fax : (91-44) 2743 5059

VNC/TH/16/2018 29.01.2018

To

The Centre Manager,
Nephroplus,
Deepam Pallavaram Hospital,
107A, Great Southern Trunk Road,
Santhi Nagar, Chromepet -600 044.

Respected Sir/Madam

Subject : Permission for conducting research study in your esteemed institution - 4 Weeks - req - reg:-

This is to bring to your kind notice that Ms. LathaSankari.R, M.Sc Nursing II year student of Venkateswara Nursing College have to do a dissertation work for a period of 4 weeks, to be submitted to The Tamil Nadu Dr.MGR Medical University, Chennai as a partial fulfillment for the award of Master of Science in Nursing.

The topic is **"A study to assess the effectiveness of aerobic exercise on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai ".** In this regard we request you to kindly permit her to use your esteemed institution to do her study. I assure that she would abide by the rules and regulation of your institution. Kindly do the needful at the earliest.

Thanking you,

Permitted for Data Collection.

Yours faithfully,

PRINCIPAL
IKATESWARA NURSING COLLEGE
THALAMBUR
CHENNAI-600 130

City Admin. Office :#521/2, Anna Salai, (Opp. G.R. Complex) Nandanam, Chennai - 600 035
Phone / Fax :(91-44) 2431 5541 / 2431 5542

VENKATESWARA NURSING COLLEGE

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Affiliated to The Tamil Nadu Dr. M.G.R. Medical University
Thalambur, Off Old Mahabalipuram Road, Near Navalur, Chennai - 600 130
Phone : (91-44) 3253 7098 / 2743 5060 Fax : (91-44) 2743 5059

VNC/TH/20/2018 13.02.2018

To

The HR,
Deepam Hospital Limited,
No 327, Muthurangam Road,
Tambaram West,
Chennai - 600045

Respected Sir/Madam

Subject : Permission for conducting research study in your esteemed insaitution - 4Weeks - req - reg:-

This is to bring to your kind notice that Ms. LathaSankariR, M.Sc Nursing II year student of Venkateswara Nursing College have to do a dissertation work for a period of 4 weeks, to be submitted to The Tamil Nadu Dr.MGR Medical University, Chennai as a partial fulfillment for the award of Master of Science in Nursing.

The topic is **"A study to assess the effectiveness of aerobic exercise on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai "**. In this regard we request you to kindly permit her to use your esteemed institution to do her study. I assure that she would abide by the rules and regulation of your institution. Kindly do the needful at the earliest.

Thanking you,

Yours faithfully,

DEEPAM HOSPITAL LTD. Tambaram, Chennai-45

PRINCIPAL
VENKATESWARA NURSING COLLEGE
THALAMBUR
CHENNAI-600 130

may be formatted
Data should be shared
as Excel
Ethical approval to be
obtained
Head Address room to be informed

22/2/18
5.30 PM

ANNEXURE - C

REQUISITION LETTER FOR CONTENT VALIDITY

From

Ms. Latha Sankari.R,

M.Sc Nursing II Year,

Venkateswara Nursing College,

Thalambur, Chennai – 130.

To

Respected Sir/Madam,

Sub: Requisition for Expert Opinion for Content Validity.

I am a M.Sc (Nursing) Second Year student studying in Venkateswara Nursing College, Thalambur, Chennai, under "The TamilNadu Dr. M.G.R. Medical University". I would like to conduct **"Effectiveness of Aerobic Exercises on Fatigue and Activities of Daily Living among Patients undergoing Hemodialysis at a Selected Hospital, Chennai."**

Here with I am sending the developed tool for the content validity for your opinion and possible suggestions, I would be most obligated if you can do the needful.

Thanking You,

Yours Faithfully,

(Ms.Latha Sankari.R)

Enclosure:

1. Research proposal
2. Research score and scoring key
3. Certificate for content validity
4. Self addressed envelope.

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERTS:

1. **Dr. Krishnakumar, MBBS, DM,**
   Nephrologist,
   Deepam Pallavaram Tertiary Hospital,
   Pallavaram. Chennai.

2. **Dr. Edwin Fernando, MBBS, MD,**
   General Medicine DM, Nephrologist,
   Deepam Hospital,
   Tambaram, Chennai- 600 045.

MEDICAL SURGICAL NURSING EXPERTS:

1. **Mrs. Sasikala, M.Sc.(N),**
   Professor,
   Omayal Achi College of Nursing,
   Puzhal, Chennai -600 066.

2. **Dr. S. Punitha Josephine, M.Sc. (N), PhD,**
   Vice Principal,
   Karpaga Vinayaga College of Nursing,
   Kanchepuram.

3. **Mrs. Stella, M.Sc. (N),**
   Professor,
   Mohammed Sathak AJ College of Nursing,
   24, Rajiv Gandhi Road (OMR),
   IT Highway Siruseri – 600 103.

4. **Mrs. Kavitha Mani, M.Sc. (N),**
   Professor,
   MMM College of Nursing,
   No.131, Sakthi Nagar, Nolambur,
   Mougappair west, Chennai – 600 095.

STATISTICICIAN:

1. **Mr. Balasubramaniyam**
   Statistician,
   Venkateswara Nursing College,
   Thalambur, Chennai – 600130.

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the data collection tool developed by Ms.Latha Sankari.R, doing M.Sc (N) II year at Venkateswara Nursing College under The Tamilnadu Dr. M.G.R Medical University for her study entitled **"Effectiveness of aerobic exercises on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai"** under the guideship of Mrs. Golda Glastin, Associate professor, Venateswara Nursing College, Thalambur, Chennai.

Signature with date: 8/2/18

Seal:

Deepam Hospital Ltd.,
No.107A G.S.T. Road,
Chromepet, Chennai-44.
Ph: 044-2264 6000 (30Lines)
Fax: 044-2264 6010
deepamhospitals.com
www.deepamhospitals.com

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the data collection tool developed by Ms.Latha Sankari.R, doing M.Sc (N) II year at Venkateswara Nursing College under The Tamilnadu Dr. M.G.R Medical University for her study entitled **"Effectiveness of aerobic exercises on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai"** under the guideship of Mrs. Golda Glastin, Associate professor, Venateswara Nursing College, Thalambur, Chennai.

Signature with date 24/7/2018

Seal:

DEEPAM HOSPITAL LTD.
DEEPAM
Tambaram, Chennai-45

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the data collection tool developed by Mrs. Jasmine Subala.D, doing M.Sc (N) II year at Venkateswara Nursing College under The Tamilnadu Dr. M.G.R Medical University for her study entitled **"A study to assess the effectiveness of Tennis Ball Therapy on sleeping pattern among Obstructive Sleep Apnea patients at selected hospital, chennai "** under the guideship of Mrs.Prathiba Sivakumar, HOD – Medical Surgical Nursing, Venateswara Nursing College, Thalambur, Chennai.

4/01/18

Signature with date

Seal:

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the data collection tool developed by Ms.Latha Sankari.R, doing M.Sc (N) II year at Venkateswara Nursing College under The Tamilnadu Dr. M.G.R Medical University for her study entitled **"Effectiveness of aerobic exercises on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai"** under the guideship of Mrs. Golda Glastin, Associate professor, Venateswara Nursing College, Thalambur, Chennai.

Signature with date
8-2-2018

Seal:

Dr. S. PUNITHA JOSEPHINE
VICE PRINCIPAL
KARPAGA VINAYAGA CON
KANCHEEPURAM-DT.

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the data collection tool developed by Ms.Latha Sankari.R, doing M.Sc (N) II year at Venkateswara Nursing College under The Tamilnadu Dr. M.G.R Medical University for her study entitled **"Effectiveness of aerobic exercises on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai"** under the guideship of Mrs. Golda Glastin, Associate professor, Venateswara Nursing College, Thalambur, Chennai.

Signature with date 23/01/18

Seal:

MOHAMED SATHAK
A.J. COLLEGE OF NURSING
34, RAJIV GANDHI ROAD (OMR)
IT HIGHWAY SIRUSERI CHENNAI-603 103

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the data collection tool developed by Ms.Latha Sankari.R, doing M.Sc (N) II year at Venkateswara Nursing College under The Tamilnadu Dr. M.G.R Medical University for her study entitled **"Effectiveness of aerobic exercises on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai"** under the guideship of Mrs. Golda Glastin, Associate professor, Venateswara Nursing College, Thalambur, Chennai.

Signature with date

Seal:

MMM COLLEGE OF NURSING
No. 131, Sakthi Nagar, Nolambur, Mugappair West
CHENNAI - 600 095

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that the data collection tool developed by Ms. Latha Sankari. R, doing M.Sc. (N) II year at Venkateswara Nursing College under The Tamil Nadu Dr. M.G.R Medical University for her study entitled **"Effectiveness of aerobic exercises on fatigue and activities of daily living among hemodialysis patients at a selected hospital, Chennai"** under the guideship of Mrs. Golda Glastin, Associate professor, Venateswara Nursing College, Thalambur, Chennai.

Signature with date 23/7/2018

Seal:

Dr. N. K .BALASUBRAMANIAN
Retired Professor, Biostatistics
D4, Priya Tower, L&T Service Station Road
Mugalivakkam, Chennai - 600125
Mob : 9566143520
email:balamanidhanam@gmail.com

CERTIFICATE FOR ENGLISH EDITION

TO WHOM IT MAY CONCERN

This is to certify that the dissertation work **"A study to assess the effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospitals, Chennai"** done by **Ms.Latha Sankari.R,** M.Sc (Nursing) II year student of Venkateswara Nursing college, Thalambur, has been edited by me and the use of English in this dissertation is found appropriate.

Signature : S. Salma

Name : S. SALMA M.A, M.Phil, B.Ed

Seal :

Date : தேதி: 30/2/18

CERTIFICATE FOR TAMIL EDITION

TO WHOM IT MAY CONCERN

This is to certify that the Research instruments/tools in Tamil used in this dissertation work **"A study to assess the effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospitals, Chennai"** done by **Ms.Latha Sankari.R,** M.Sc (Nursing) II year student of Venkateswara Nursing college, Thalambur, Chennai, has been edited by me and the use of Tamil in this dissertation is found appropriate.

Signature : ஏ. உமாமகேஸ்வரி

Name : ஏ. உமாமகேஸ்வரி. M.A. B.Ed. MPhil.

Seal :

Date : சர்.ராமசாமி முதலியார் மேனிலைப் பள்ளி அம்பத்தூர், சென்னை-53. தேதி: 30/7/18

APPENDIX – E

INFORMED CONSENT REQUEST FORM

Good morning,

I Ms. Latha Sankari. R, M.Sc (Nursing) II year student from Venkateswara Nursing College, Chennai, conducting **" A study to assess effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis at a selected hospitals, Chennai"** as a partial fulfillment of the requirement for the degree of M.Sc. Nursing under the Tamil Nadu Dr. M.G.R. Medical University, Chennai.

I assure you that the information provided by you will be kept confidential. So, I request you to kindly cooperate with me and participate in this study by giving your frank and honest response throughout the study.

Thanking you,

Signature of the investigator

(Ms. Latha Sankari. R)

INFORMED CONSENT FORM

Participant's Name :

Participant's identification number for this study :

I understand that I am being asked to participate in a research study conducted by Ms. Latha Sankari.R, M.Sc (Nursing) II year student from Venkateswara Nursing College, Chennai. This study will evaluate **"A study to assess the effectiveness of aerobic exercises on fatigue and activities of daily living among patients undergoing hemodialysis at selected hospitals, Chennai"**. If I agree to participate in the study, I will be given structured questionnaire to know the demographic variable and the investigator will observe my level of self esteem using a standard questionnaire. The answers will be kept confidential. No identifying information will be included during the analysis process. I understand that there is no risk associated with this study.

I realize that my participation in this study is entirely voluntary and I may withdraw from the study at any time I wish. If I decide to discontinue my participation in this study, I will be continued to be treated in the usual and customary fashion.

I understand that all information will be kept confidential. However, this information may be used in nursing publication or presentations. If I need to, I can contact, Ms. Latha Sankari. R, M.Sc (Nursing) II year, Venkateswara Nursing College, Thalambur, Chennai (phone no: 044-32577098) at any time during the study. The study has been explained to me. I have read and understood the consent form, my entire question has been answered and I agree to participate. I understand that I will be given a copy of this signed consent form.

Signature of the Participant Signature of the Investigator

Date Date

APPENDIX - G

TOOLS FOR DATA COLLECTION

PART - I

SECTION A: DEMOGRAPHIC DATA

1. Age

a) 35-45 Years

b) 46-55 Years

c) 56- 65 Years

2. Sex

a) Male

b) Female

3. Marital Status

a) Married

b) Single

c) Widow/Widower

d) Divorced

4. Educational status

a) Graduate

b) Higher secondary School

c) High School

d) Primary secondary

e) Illiterate

5. Occupation

a) Sedentary workers

b) Moderate workers

c) Heavy workers

d) Home maker

6. Area of Residence

a) Urban

b) Rural

c) Semi – Urban

7. Duration of illness (CKD)

a) ≤ 1 year

b) 1-5 year

8. Family history of CKD

a) Yes

b) No

If yes specify

9. Duration of hemodialysis

a) ≤ 6 months

b) 1 – 2 years

10. Frequency of hemodialysis per week

a) Weekly once

b) Weekly twice

c) Weekly thrice

PART – II

SECTION A: FATIGUE SEVERITY SCALE (FSS)

During the past one week, I have found that	Disagree ⟷ Agree
1. My motivation lowers when I am fatigue	1 2 3 4 5 6 7
2. I am easily getting fatigue	1 2 3 4 5 6 7
3. Fatigue interferes with my physical functioning	1 2 3 4 5 6 7
4. Fatigue interferes in carrying my responsibilities	1 2 3 4 5 6 7
5. Fatigue is among my 3 most disabling symptoms	1 2 3 4 5 6 7
6. Fatigue with in my social, work and family life.	1 2 3 4 5 6 7
7. Exercises bring on my fatigue.	1 2 3 4 5 6 7
8. Fatigue causes frequent problem for me.	1 2 3 4 5 6 7
9. Fatigue prevents sustained physical functioning	1 2 3 4 5 6 7

Add all the 9 questions 1+2+3+4+5+6+7+8+9 = ---------- /divide by 9

FSS SCORING KEY

SCORING	CATEGRIES
< 36	No Fatigue
≥ 36	Severe Fatigue.

SECTION B: PHYSICAL SELF-MAINTENANCE SCALE (ACTIVITIES OF DAILY LIVING, OR ADLs)

A. Toilet _____

1. Care for self at toilet completely; no incontinence 1
2. Needs to be reminded, or needs help in cleaning self, or has rare (weekly at most) Accidents 0
3. Soiling or wetting while asleep more than once a week 0
4. Soiling or wetting while awake more than once a week 0
5. No control of bowels or bladder 0

B. Feeding _____

1. Eats without assistance 1
2. Eats with minor assistance at meal times and/or with special preparation of food, or help in cleaning up after meals 0
3. Feeds self with moderate assistance and is untidy 0
4. Requires extensive assistance for all meals 0
5. Does not feed self at all and resists efforts of others to feed him or her 0

C. Dressing _____

1. Dresses, undresses, and selects clothes from own wardrobe 1
2. Dresses and undresses self, with minor assistance 0
3. Needs moderate assistance in dressing and selection of clothes. 0
4. Needs major assistance in dressing, but cooperates with efforts of others to help 0
5. Completely unable to dress self and resists efforts of others to help 0

D. Grooming (neatness, hair, nails, hands, face, clothing) _____

1. Always neatly dressed, well-groomed, without assistance 1
2. Grooms self adequately with occasional minor assistance, eg, with shaving 0
3. Needs moderate and regular assistance or supervision with grooming 0
4. Needs total grooming care, but can remain well-groomed after help from others 0
5. Actively negates all efforts of others to maintain grooming 0

E. Physical Ambulation _____

1. Goes about grounds or city 1
2. Ambulates within residence on or about one block distant 0

3. Ambulates with assistance of (check one)

a ( ) another person, b ( ) railing, c ( ) cane, d ( ) walker, e ( ) wheelchair 0

1.__Gets in and out without help. 2.__Needs help getting in and out

4. Sits unsupported in chair or wheelchair, but cannot propel self without help 0

5. Bedridden more than half the time 0

F. Bathing _____

1. Bathes self (tub, shower, sponge bath) without help. 1

2. Bathes self with help getting in and out of tub. 0

3. Washes face and hands only, but cannot bathe rest of body 0

4. Does not wash self, but is cooperative with those who bathe him or her. 0

5. Does not try to wash self and resists efforts to keep him or her clean. 0

Add all the 6 questions 1+2+3+4+5+6 = ---------

ADL SCORING

SCORING	CATEGRIES
≤ 2	Fully Dependent
3- 5	Moderately Dependent
6	Fully Independent Functioning

SECTION C: INSTRUMENTAL ACTIVITIES OF DAILY LIVING SCALE (IADLs)

A. Ability to Use Telephone _____

1. Operates telephone on own initiative; looks up and dials numbers. 1

2. Dials a few well-known numbers. 1

3. Answers telephone, but does not dial. 1

4. Does not use telephone at all. 0

B. Shopping _____

1. Takes care of all shopping needs independently. 1

2. Shops independently for small purchases. 0

3. Needs to be accompanied on any shopping trip. 0

4. Completely unable to shop. 0

C. Food Preparation _____

1. Plans, prepares, and serves adequate meals independently. 1

2. Prepares adequate meals if supplied with ingredients. 0

3. Heats and serves prepared meals or prepares meals, but does not maintain adequate diet 0

4. Needs to have meals prepared and served. 0

D. Housekeeping _____

1. Maintains house alone or with occasional assistance (e.g., heavy-work domestic help). 1

2. Performs light daily tasks such as dishwashing, bed making. 1

3. Performs light daily tasks, but cannot maintain acceptable level of cleanliness. 1

4. Needs help with all home maintenance tasks. 1

5. Does not participate in any housekeeping tasks. 0

E. Laundry _____

1. Does personal laundry completely. 1

2. Launders small items; rinses socks, stockings, etc. 1

3. All laundry must be done by others. 0

F. Mode of Transportation _____

1. Travels independently on public transportation or drives own car. 1

2. Arranges own travel via taxi, but does not otherwise use public transportation. 1

3. Travels on public transportation when assisted or accompanied by another. 1

4. Travel limited to taxi or automobile with assistance of another. 0

5. Does not travel at all. 0

G. Responsibility for Own Medications _____

1. Is responsible for taking medication in correct dosages at correct time. 1

2. Takes responsibility if medication is prepared in advance in separate dosages. 0

3. Is not capable of dispensing own medication. 0

H. Ability to Handle Finances ____

1. Manages financial matters independently (budgets, writes checks, pays rent and bills, goes to bank); collects and keeps track of income. 1

2. Manages day-to-day purchases, but needs help with banking, major purchases, etc. 1

3. Incapable of handling money. 0

Add all the 8 questions 1+2+3+4+5+6+7+8= --------

IADL SCORING

SCORING	CATEGRIES
≤ 4	Fully Dependent
5- 7	Moderately Dependent
8	Fully Independent Functioning

CERTIFICATE FOR THE CONTENT VALIDITY

This is to certify that Ms.Latha Sankari.R, doing M.Sc (N) II year at Venkateswara Nursing College has successfully completed the required training issused by physiotherapist and she can be the instructor for these aerobic exercises to patients.

26/7/18

Signature with date

Seal: A.R. REJINI KANTH
Physiotherapist

APPENDIX – I

RESEARCH INSTRUMENTS IN TAMIL

ஆய்வில் பங்கேற்ப்பதற்கான கோரிக்கை படிவம்

வணக்கம்,

என் பெயர் செல்வி, லதா சங்கரி, நான் வெங்கடேஸ்வரா செவிலியர் கல்லூரியில் பட்ட மேற்படிப்பு படித்து வருகிறேன். என் படிப்பின் ஒரு பகுதியாக "சென்னையில் தேர்ந்தெடுக்கப்பட்ட மருத்துவமனைகள், ஹெமோடையாலிசிஸ்க்காக சேர்ந்த நோயாளிகளுக்கு தினமும் வாழ்பவர்களின் செயல்பாடு மற்றும் சோர்வு மீது ஏரோபிளிக் பயிற்சிகளின் செயல்திறனை மதிப்பிடுவதற்கான ஒரு ஆய்வு" செய்கிறேன்.

நீங்கள் ஆய்வின் போது தெரிவிக்கப்படும் தகவல்கள் அனைத்தும் முறையாக பாதுகாக்கப்படும் என்று உறுதியளிக்கிறேன். எனவே இந்த ஆய்வில் நீங்கள் பங்கு பெற்று கேட்கப்படும் கேள்விகளுக்கு உங்களின் நேர்மையான மற்றும் வெளிப்படையான கருத்துகளை தெரிவித்து ஆய்விற்கு ஒத்துழைக்குமாறு அன்போடு கேட்டுக்கொள்கிறேன்.

நன்றி

இப்படிக்கு ஆராய்ச்சியாளர்,

R. லதா சங்கரி

ஆய்வில் பங்கேற்பதற்கான ஒப்புதல் படிவம்

பங்கேற்பாளரின் பெயர் :

பங்கேற்பாளரின் குறியீட்டு என் :

ஆராய்ச்சியின் தலைப்பு : "சென்னையில் தேர்ந்தெடுக்கப்பட்ட மருத்துவமனைகள், ஹெமோடையாலிசிஸ்க்காக சேர்ந்த நோயாளிகளுக்கு தினமும் வாழ்பவர்களின் செயல்பாடு மற்றும் சோர்வு மீது ஏரோபிளிக் பயிற்சிகளின் செயல்திறனை மதிப்பிடுவதற்கான ஒரு ஆய்வு" செய்கிறேன்.

வெங்கடேஸ்வரா செவிலியர் கல்லூரியில் பட்ட மேற்படிப்பு இரண்டாம் ஆண்டு பயிலும் மாணவி லதா சங்கரி, நடத்தும் ஆய்வில் பங்கேற்குமாறு கேட்டுக்கொள்ளப்பட்டுள்ளேன். நான் இந்த ஆய்வில் பங்கேற்கும் பட்சத்தில், நிலையான கேள்வி தாள் மூலம் கேட்கப்படும் கேள்விகளுக்கு நேர்மையான மற்றும் வெளிப்படையான கருத்துகளை தெரிவிப்பேன். என் தகவல்கள் அனைத்தும் ரகசியமாக வைக்கப்படும். பகுப்பாய்வு செயல்முறையின் போது என்னை அடையாளம் காணும் தகவல்கள் எதுவும் சேர்க்கப்படாது. இந்த ஆய்வில் எந்த ஆபத்தும் இல்லை என்று நான் புரிந்துகொண்டேன்.

இந்த ஆய்வில் எனது பங்களிப்பு முற்றிலும் தன்னிச்சையானது. மேலும் நன் விரும்பும் பட்சத்தில் எப்போது வேண்டுமானாலும் இந்த ஆய்வில் இருந்து விலகலாம் என்று தெரிந்து கொண்டேன். நான் இந்த ஆய்வில் பங்கேற்ப்பதை நிறுத்துவதற்க்கு முடிவு செய்தால், வழக்கமாக நான் பெரும் சிகிச்சைகளை தொடர்ந்து பெறலாம் என்றும் அறிந்து கொண்டேன்.

இந்த ஆய்வின் தகவல்கள், செவிலியம் சார்ந்த வெளியீடுகள் மற்றும் விளக்க காட்சிகளில் பயன்படுத்தப்படலாம்.

நான் ஒப்புதல் படிவத்தை புரிந்துகொண்டேன், இந்த ஆய்வு பற்றிய அணைத்து தகவல்களும் எனக்குத் தெரிவிக்கப்பட்டது. எனது சந்தேகங்களும் தெளிவடைந்தது. இந்த ஒப்புதல் படிவத்தின் நகல் எனக்கு வழங்கப்படும் என்றும் அறிந்து இந்த ஆய்வில் பங்கேற்க என் முழு மனதுடன் ஒப்புக்கொள்கிறேன்.

பங்கேற்ப்பாளரின் கையொப்பம் ஆராய்ச்சியாளரின் கையொப்பம்

தேதி தேதி

பிரிவு – அ - சமூக காரணிகள்

1.வயது

i. 35-45 ஆண்டுகள்
ii. 46-55 ஆண்டுகள்
iii. 56- 65 ஆண்டுகள்

2. பாலினம்

i. ஆண்
ii. பெண்

3. திருமண நிலை

i. திருமணம்
ii. ஒற்றை
iii. விதவை / மனைவியை இழந்தவர்
iv. விவாகரத்து

4. கல்வித் தகுதி

i. பட்டதாரி
ii. மேல்நிலை பள்ளி
iii. உயர்நிலை பள்ளி
iv. இரண்டாம் நிலை
v. படிப்பறிவில்லாத

5. தொழில்

i. செண்டிமெண்ட் தொழிலாளர்கள்
ii. மிதமான தொழிலாளர்கள்
iii. கனரக தொழிலாளர்கள்
iv. வீட்டு தயாரிப்பாளர்

6. வசிப்பிட பகுதி

i. நகர்ப்புற
ii. ஊரக
iii. அரை - நகரம்

7. நோய் காலநிலை (CKD)

i. <1 மாதங்கள்
ii. 1-5 வருடம்

8. CKD இன் குடும்ப வரலாறு

i. ஆம்
ii. இல்லை

ஆம் என்பதைக் குறிப்பிடுக

9. ஹெமோடையாலிசிஸ்க்காக காலம்

i. <6 மாதங்கள்
ii. 1-2 ஆண்டுகள்

10. வாரத்திற்கு ஹெமோடையாலிசிஸ்க்காக அதிர்வெண்

i. வாரத்திற்கு ஒருமுறை
ii. இரண்டு வாரங்கள்
iii. வாராந்திர மூன்று

சோர்வு அதனுடைய தீவிரத்தன்மையைப் அடையாளம் அளவில்

1.என் சோர்வு போது என் ஊக்கம் குறைகிறது

2.என்னை எளிதில் சோர்வு

3. உடல்நலம் என் உடல் செயல்பாட்டுடன் குறுக்கிடுகிறது

4. எனது பொறுப்புகளை நிறைவேற்றுவதில் ்ப்ரீ கிஜ் தலையிடுகிறார்

5.பாதிப்பு என் 3 மிகவும் முடக்கிய அறிகுறிகளில் ஒன்றாக உள்ளது

என் சமூகத்தில், வேலை மற்றும் குடும்ப வாழ்வில் 6.Fatigue.

7.சிகிச்சைகளை என் சோர்வு கொண்டு.

8.Fatigue எனக்கு அடிக்கடி பிரச்சினை ஏற்படுகிறது.

9. களைப்பு உடல் ரீதியான செயல்பாட்டை தடுக்கிறது

உடல்நலம் சுய-பராமரிப்பு திட்டம் (தினசரி வாழ்க்கைச் செயல்பாடுகள், அல்லது ADL கள்)

A. கழிப்பறை ____

1. முற்றிலும் கழிப்பறைக்கு சுய பராமரிப்பு; எந்த ஒத்திசைவு

2. நினைவூட்ட வேண்டிய அவசியம், அல்லது தன்னையே சுத்தம் செய்ய உதவுதல் அல்லது அரிதான (பெரும்பாலான வாரந்தோறும்) விபத்துக்கள்

3. தூக்கத்தில் அல்லது வியர்வை போது வாரம் ஒரு வாரம் கழித்து

4. ஒரு வாரத்திற்கு ஒருமுறை விழித்தெழும்போது நனைந்து அல்லது ஈரமாக்குதல்

5. குடல் அல்லது சிறுநீர்ப்பைக் கட்டுப்பாடு இல்லை

B. உணவு

1. உதவி இல்லாமல் சாப்பிடுவது

2. உணவு நேரங்களில் மற்றும் / அல்லது சிறப்பு உணவு தயாரித்தல் அல்லது சிறிய உதவி உதவுகிறது

உணவு 0 பிறகு சுத்தம் செய்ய உதவும்

3. மிதமான உதவியுடன் சுயமாக பயன் படுத்துவதும்,

4. அனைத்து உணவிற்கும் விரிவான உதவி தேவை

5. தன்னையே உண்ணாமலும், மற்றவர்களுடைய முயற்சிகளையோ, அவரோடு உண்ணாமலிருப்பதில்லை

C. உடை மாற்ற

1. ஆடைகள், துணிமணிகள், மற்றும் தனிப்பட்ட துணிகளை 1 இருந்து துணி தேர்வு

2. உடைகள் மற்றும் சிறுகுறிப்பு சுய, சிறிய உதவி

ஆடைகளை உடைத்தல் மற்றும் தேர்வு செய்வதில் மிதமான உதவி தேவை

4. ஆடை அணிவதில் முக்கிய உதவி தேவைப்படுகிறது, ஆனால் மற்றவர்களுக்கு உதவி செய்ய ஒத்துழைக்க உதவுகிறது

5. சுய உடைத்து முற்றிலும் உதவ முடியவில்லை மற்றவர்களுக்கு உதவி

D. சீர்ப்படுத்தும் (தெளிவாகவும் சரியாகவும், முடி, நகங்கள், கைகள், முகம், ஆடை) ____

1. எப்பொழுதும் அழகாக உடையணிந்து, நன்கு வருகிற, உதவி இல்லாமல்

2. சில நேரங்களில் சிறிய உதவி, எ.கா.

3. மிதமான மற்றும் வழக்கமான உதவி அல்லது பராமரித்தல் மேற்பார்வை வேண்டும்

4. மொத்தப் பராமரிப்பைப் பராமரிக்க வேண்டும், ஆனால் மற்றவர்களிடமிருந்து உதவி கிடைத்த பிறகு நன்கு வளர்க்கலாம்

5. மற்றவர்களுடைய எல்லா முயற்சிகளையும் ஒழுங்காக பராமரிக்காமல் தொடர்ந்து செயல்பட வேண்டும்

E. உடல் நலம்

1. மைதானம் அல்லது நகரம் பற்றி 1 செல்கிறது

2. குடியிருப்புக்குள்ளான தங்குமிடம் அல்லது ஒரு தடுப்பு தூரம்

3. உதவி கொண்டு ஆம்புலேட்ஸ் (ஒன்றை சரிபார்க்கவும்)

a) மற்றொருவர், b) railing, c) கரும்பு, d) வாக்கர், ஈ) சக்கர நாற்காலி 0

1 .உதவி இல்லாமல் உள்ளே சென்று வெளியேறுகிறது. 2. அவுட் மற்றும் அவுட் பெற உதவி தேவை

4. நாற்காலியில் அல்லது சக்கர நாற்காலியில் ஆதரிக்கப்படாத அமர்வுகள், ஆனால் உதவி இல்லாமல் சுயமாக இயங்க முடியாது

5. படுக்கையில் பாதிக்கும் மேற்பட்ட என்பது

F. குளியல் ____

1. உதவுமின்றி சுயமாக (தொட்டி, மழை, கடற்பாசி குளியல்) குளிப்பது. 1

2. தொட்டி மற்றும் வெளியே பெறுவது உதவி சுய ஊடுருவி. 0

3. முகம் மற்றும் கைகளை மட்டும் கழுவுதல், ஆனால் உடலின் மற்றவற்றைக் கழுவுதல் கூடாது

4. சுயமாக கழுவுங்கள், ஆனால் அவரை அல்லது அவள் குளிப்பவர்களுடன் கூட்டுறவு. 0

5. சுயமாக சுத்தம் செய்ய முயற்சி செய்யாதீர்கள், அல்லது அவரை சுத்தமாக வைத்திருக்க முயற்சிக்கும்.

தினசரி வாழ்க்கைத் திட்டத்தின் (IADL கள்) உபகரண நடவடிக்கைகள்

A. தொலைபேசி பயன்படுத்துவதற்கான திறன்

1. சொந்த முன்முயற்சியுடன் தொலைபேசியை இயக்குதல்; தோன்றுகிறது மற்றும் எண்கள் டயல் செய்கிறது.

2. சில நன்கு அறியப்பட்ட எண்களை டயல் செய்கிறது.

3. பதில் தொலைபேசி, ஆனால் டயல் இல்லை.

4. தொலைபேசியைப் பயன்படுத்த வேண்டாம்.

B. ஷாப்பிங் _____

1. அனைத்து ஷாப்பிங் தேவைகளையும் கவனித்துக் கொள்ளுங்கள்.

2. சிறிய கொள்முதல்களுக்கு தனித்தனியாக கடைகள்.

எந்தவொரு ஷாப்பிங் பயணத்திலும் இணைக்க வேண்டும்.

4. ஷாப்பிங் செய்ய முடியவில்லை.

C. உணவு தயாரிப்பு _____

1. திட்டங்கள், தயார் செய்தல், மற்றும் போதுமான உணவுகளை இலவசமாக வழங்க உதவுகிறது.

2. பொருட்களுடன் வழங்கப்பட்டால் போதுமான உணவை தயாரிக்கவும்.

3. ஹீட்ஸ் மற்றும் தயாரிக்கப்படும் உணவு சாப்பிட அல்லது சாப்பாடு தயார், ஆனால் போதுமான உணவு பராமரிக்க முடியாது .

4. உணவு தயாரிக்க வேண்டும் மற்றும் பணியாற்ற வேண்டும்.

D. வீட்டுக்காட்சி _____

1. தனியாக வீடு அல்லது அவ்வப்போது உதவி பராமரிக்கிறது (எ.கா., கடுமையான வேலை உள்நாட்டு உதவி).

2. தினசரி பணிகளை பாத்திரங்களை கழுவுதல், படுக்கையறை செய்தல்.

3. அன்றாட பணிகளைச் செய்தால், தூய்மையின்மைக்கு ஏற்றபடி பராமரிக்க முடியாது.

4. வீட்டு பராமரிப்பு பணிகளுக்கு உதவி தேவை.

5. வீட்டு பராமரிப்பு பணியில் பங்கேற்க வேண்டாம்.

E. சலவை நிலையம் ____

1. தனிப்பட்ட சலவை முழுமையாக.

2. சிறிய பொருட்களை ஏற்றிச் செல்வது; கழுவுதல் சாக்ஸ், காலுறைகள், முதலியன

3. எல்லா சலவைகளும் மற்றவர்கள் செய்ய வேண்டும்.

F. போக்குவரத்து போக்குவரத்து ____

1. பொதுப் போக்குவரத்தில் சுயாதீனமாக பயணித்து அல்லது சொந்த கார் செலுத்துகிறது.

2. டாக்ஸி வழியாக சொந்த பயணத்தை ஒழுங்குபடுத்துதல், இல்லையெனில் பொது போக்குவரத்தை பயன்படுத்துவதில்லை.

3. பொது போக்குவரத்தில் பயணிப்பது அல்லது உதவியுடன் மற்றொரு பயணத்தின்போது பயணிக்கிறது.

4. டாக்ஸி அல்லது ஆட்டோமொபைலில் மற்றொரு பயணத்தின் மூலம் பயணம் செய்யுங்கள்.

5. பயணம் செய்யாதே.

G. சொந்த மருந்துகளுக்கான பொறுப்பு _____

சரியான நேரத்தில் சரியான மருந்துகளில் மருந்தை உட்கொள்ளுதல் பொறுப்பு.

2. மருந்துகள் முன்கூட்டியே தயாரிக்கப்பட்டிருந்தால், பொறுப்பேற்க வேண்டும்.

3. சொந்த மருந்தை வழங்கும் திறன் இல்லை.

H. நிதிகளை கையாளுவதற்கான திறன் ___

1. சுயாதீனமாக நிதி விஷயங்களை நிர்வகிக்கிறது (பட்ஜெட், எழுதுதல் காசோலைகள், வாடகைக்கு செலுத்துதல் மற்றும் பில்கள், வங்கிக்கு செல்கிறது); சேகரித்து வருவாய் கண்காணிக்கும்.

2. நாள் முதல் நாள் கொள்முதலை நிர்வகிக்கிறது, ஆனால் வங்கி, பெரிய கொள்முதல், ஆகியவற்றிற்கு உதவுகிறது முதலியன

3. பணத்தை கையாளுவதற்கு இயலாது.

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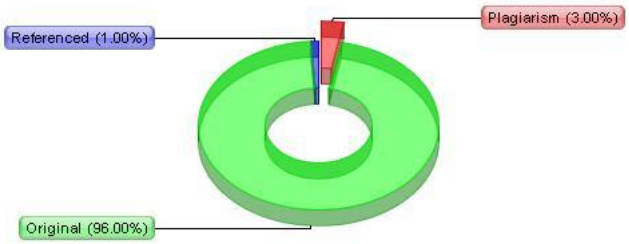

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APPENDIX - K

CODING FOR DEMOGRAPHIC VARIABLES

Section A:

Socio demographic variables	**Code**
1. Age	
a) 35-45 Years	1
b) 46-55 Years	2
c) 56- 65 Years	3
2. Sex	
a) Male	1
b) Female	2
3. Marital Status	
a) Married	1
b) Single	2
c) Widow/Widower	3
d) Divorced	4
4. Educational status	
a) Graduate	1
b) Higher secondary School	2
c) High School	3
d) Primary secondary	4
e) Illiterate	5
5. Occupation	
a) Sedentary workers	1

b) Moderate workers 2

c) Heavy workers 3

d) Home maker 4

6. Area of Residence

a) Urban 1

b) Rural 2

c) Semi – Urban 3

7. Duration of illness (CKD)

a) ≤ 1 year 1

b) 1-5 year 2

8. Family history of CKD

a) Yes 1

b) No 2

If yes specify

9. Duration of hemodialysis

a) ≤ 6 months 1

b) 1 – 2 years 2

10. Frequency of hemodialysis per week

a) Weekly once 1

b) Weekly twice 2

c) Weekly thrice 3

APPENDIX – L

INTERVENTION TOOL

AEROBIC EXERCISES

4 set of Aerobic exercises demonstrated to the experimental group for 20 mins and advised the patients to practice this in their home for next 14 days. The list of the exercises details are given below.

S. No.	Exercises	Minutes/ Rest Time
1.	Simple Seated Hamstring Curls (Leg Folding) right and left legs each.	2 min each legs / Rest time 1 min
2.	Reverse Curls (Leg Lifting) right and left legs	2 min each hands/ Rest time 1 min
3.	Simple Arm Rotation (hand rotation) right and left hand (fistula hand excluded during dialysis)	2 min each hands/ Rest time 1 min
4.	Biceps curls (Hand lifting) right and left hand (fistula hand excluded during dialysis)	2 min each hands/ Rest time 1 min

Totally 16 minutes with rest period of 4 minutes.

APPENDIX - M

DISSERTATION EXECUTION PLAN – GANTT CHART

S.No.	Academic calendar months	November – 2016 To October - 2017												November – 2017 To October - 2018											
		N	D	J	F	M	A	M	J	JU	A	S	O	N	D	J	F	M	A	M	J	JU	A	S	O
A	**Conceptual phase**																								
1	Problem identification																								
2	Literature Review																								
3	Clinical Field work																								
4	Theoretical Framework																								
5	Hypothesis Formulation																								
B	**Designing & Planning phase**																								
6	Research design																								
7	Intervention protocol																								
8	Population specification																								
9	Sampling plan																								
10	Data collection plan																								
11	Ethics procedure																								
12	Finalization of plans																								
C	**Empirical phase**																								
13	Data collection																								
14	Data preparation																								
D	**Analytical phase**																								
15	Data analysis																								
16	Interpretation of results																								
E	**Dissemination phase**																								
17	Presentation of report																								
18	Utilization of findings																								
	Calendar months	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10

APPENDIX - N

PRETEST

INTERVENTION

INTERVENTION

POST TEST